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LIVESTOCK

MINSK CONFERENCE EXAMINES PROBLEMS OF STOCK RAISING

Minsk SOVETSKAYA BELORUSSIYA in Russian 25 Mar 81 p 2

[Report on conference: "Shock Front of Rural Areas"]

[Text] As already reported, a republic zootechnical conference was held in Minsk on 23 March. N. I. Dementey, secretary of the Central Committee of the Communist Party of Belorussia, presented the report "On Measures To Increase the Production and Procurement and To Improve the Quality of Livestock Products in the Light of the Demands of the 26th CPSU Congress" at this conference.

He said that the Central Committee of the Communist Party of Belorussia attached great importance to the republic conference of zootechnical and veterinary workers and to the influence of its representative staff on an elimination of shortcomings and a successful accomplishment of the tasks set for increasing the production and procurement of livestock products.

Owing to the significant help of the state in the development of the material and technical base of agriculture, during the past 5-year period, as compared with the Ninth Five-Year Plan, the production of meat on kolkhozes and sovkhoses increased by 21 percent, of milk, by 18 percent, of eggs, by 62 percent and of wool, by 5 percent. The sale of these products to the state rose, their quality improved and the population of basic types of farm animals and poultry increased.

At the same time, the level of achievements in many respects does not yet correspond to the existing possibilities and the tasks set. In a number of basic items the republic's animal husbandry did not reach the outlined goals during the 10th Five-Year Plan. The productivity of animals and the rates of production growth have declined in the last 2 years.

The speaker noted that the efficiency of animal husbandry was of paramount importance for our republic, where animal husbandry accounts for 80 percent of the commodity output and for the same proportion of the net income of kolkhozes and the profit of sovkhoses. However, only 65 to 70 percent and, on many farms and in a number of rayons, one-half of the potentialities of animals in terms of productivity are utilized. The periods of raising fattening livestock exceed zootechnically substantiated periods 1.6 to 1.8 times. On the average, throughout the republic 20 to 25 percent of fodder more than optimally permissible is spent on the production of 1 quintal of milk and meat. During the past five-year plan the entire increase in the gross production of milk was due only to the rise in the number of

cows and 38 percent of the increase in meat production was obtained as a result of the growth of productivity of animals and 62 percent, as a result of the rise in their population.

The present wintering of livestock takes place under complicated conditions. This requires from all personnel a high level of work fitness and a ceaseless search for ways to overcome difficulties. Meanwhile, managers and specialists of many kolkhozes and sovkhoses act as though there has been no decrease in milk yields and in the weight gain of livestock. On the Kalinovka Sovkhoz in Lyubanskiy Rayon, where A. S. Dorosinets is the director and M. I. Osmolovskaya performs the duties of chief zootechnician, to this day an efficient utilization of fodder has not been ensured--its preparation before distribution to livestock has not been organized. Straw has begun to be minced only now, at the end of wintering, protein and vitamin additives are not used and no more than 300 grams of coniferous meal--only for smelling, as the saying goes--are allocated to cows. Hence the "return:" In 2 months the milk yield per cow was reduced by 48 kg. The weight gain of raised and fattened livestock was lowered.

At the ranches of the Kolkhoz imeni Kirov in Pruzhanskiy Rayon fodder is distributed without weighing, "by eye." However, this fact does not prevent chairman P. A. Parkhuta and zootechnician A. M. Deshko from observing accuracy in the "recording" of fodder. They write off exactly 6.1 fodder units per cow every day. The particle "not" is most characteristic of the work done at the ranches on this farm: Root crops are not minced, silage is not deoxidized, salt is not delivered and nitrogen containing additives are not used. Therefore, gross milk production was lowered by 40 percent as compared with last year's period.

Mismanagement at ranches reigns on the Kolkhoz imeni Tel'man in Braginskiy Rayon, the Kolkhoz imeni Chapayev in Miorskiy Rayon, the Kolkhoz imeni Zaslunov in Bykhovskiy Rayon, the Pobeda Kolkhoz in Kobrinskiy Rayon, the Znamya Sovetov Kolkhoz in Lidskiy Rayon, the Zagal'skiy Sovkhoz in Lyubanskiy Rayon, the Pogodino Experimental Base in Goretskiy Rayon and many other farms in the republic.

Meanwhile, N. I. Dementey noted further, even under difficult conditions the wintering of livestock is well organized on farms whose managers and specialists think and act in a competent way and with a high sense of responsibility. For example, the Vedrich Pedigree Stock Farm in Rechitskiy Rayon, where L. I. Glytov has worked as a zootechnician for 12 years, was able to stock up 22.5 quintals of fodder units per standard head of livestock for winter. Nevertheless, fodder is stored and utilized on a strictly scientific basis. Rations are prepared only after a full chemical analysis of all fodder in a laboratory. Its resources are also replenished in winter as a result of the preparation of coniferous meal and paste, collection of food waste and use of additives. Fodder is distributed in a form balanced in nutritive substances and in a differentiated way--depending on productivity. The milk yield of cows is increased mandatorily and ultraviolet irradiation of the milk herd is practised. The strict daily work schedule at ranches and improvement in the occupational skills of livestock breeders also contribute to the attainment of success. The average daily milk yield per cow is now 13.6 kg--it exceeds last year's milk yield by 1.8 kg. One should learn from efficient managers. However, the experience of advanced workers is not yet widespread in Gomel'skaya Oblast, or in other oblasts in the republic.

It was noted at the conference that difficulties with fodder aggravated by oversights and blunders on the part of farm managers and specialists led to the fact that in 2 months of this year milk production on kolkhozes and sovkhoses was lowered by almost 73,000 tons and the average milk yield per cow, by 41 kg. The purchases of livestock rose only as a result of the increase in the sold stock. However, the weight standards of animals were lowered. Farms in Vitebskaya Oblast sold large-horned cattle of the lowest weight--309 kg--and farms in Brestskaya, Vitebskaya and Mogilevskaya oblasts, hogs of the lowest weight--93 to 98 kg.

All rayons in the republic, except for Nesvizhskiy Rayon, reduced milk purchases. Kolkhozes and sovkhoses in Pruzhanskiy, Dubrovenskiy, Braginskiy, Kalinkovichskiy, Loyevskiy, Oktyabr'skiy and Krichevskiy rayons lowered milk procurements by more than 40 percent.

All this, as never before, obligates farm specialists and managers and party, Soviet and agricultural bodies to work in an atmosphere of great responsibility and mutual demands for an elimination of shortcomings in the organization of the wintering of livestock and the fulfillment of the plans and obligations of the first year of the 11th Five-Year Plan. There are potentials for this.

As before, dairy farming remains one of the largest labor-intensive sectors of animal husbandry. Almost 130,000 people, including 90,000 milkmaids, are engaged in the servicing of cows and heifers. A total of 38 percent of the fodder resources are also utilized there. The task of increasing the average milk yield per cow in the republic to 2,370 kg and of annually obtaining 2,900 to 3,000 kg in the future was set this year. The practice of the Kolkhoz imeni Kalinin in Nesvizhskiy Rayon, the Kolkhoz imeni Timiryazev in Kopyl'skiy Rayon and a number of other farms indicates that a skillful utilization of pastures contributes in large measure to the attainment of such results. To provide livestock with green fodder at the earliest time, it is necessary to promptly allocate plots of winter crops and early growing grass, to feed them with mineral fertilizers and to harrow them. On every farm it is necessary to establish a green conveyor of fodder crops and to organize constant links for the mowing and delivery of fodder to ranches.

An increase in the production of livestock products is hampered in large measure by the great barrenness of the breeding stock. Year after year the output of calves per 100 cows does not exceed 80 and last year it was lowered to 77. The reason for such a situation, the speaker stressed, lies not only in the decrease in the level of feeding and quality of fodder, as some specialists of the zooveterinary service try to represent, but in their careless attitude toward the performance of their duties.

Specialists of administrations of agriculture, kolkhozes and sovkhoses do not pay sufficient attention to the introduction of flow-shop organization of production into dairy farming. At present it operates only at 400 ranches and complexes and includes only 9 percent of the dairy stock. But, as specialists believe, as a result of this alone it would be possible to additionally obtain 120,000 to 130,000 calves and more than 150,000 tons of milk annually.

Specialists and managers of farms in Volkovyasskiy Rayon can teach a lesson in how to best regulate the labor of livestock breeders. They pay attention not only to the construction of new complexes, but also to the reconstruction of animal husbandry ranches and the introduction of overall mechanization with a simultaneous improvement in labor organization. The Kolkhoz imeni Zhdanov is an initiator in this matter. Before the reconstruction 16 milkmaids, each of whom serviced no more than 20 cows, worked at the Izobelin Ranch, where there are two cow barns for 400 cows. They fed and milked the animals and cleaned the barns. After the reconstruction, when fodder distribution was mechanized, a milk line was installed and division of labor per operation was used, milkmaids began to service 50 cows.

The advantages of reconstruction are obvious. Labor productivity at the ranch increased by more than 70 percent. Whereas previously 62 tons of milk per worker were produced annually, now, 105 to 110 tons. The production cost of 1 quintal of output was lowered by 1 ruble 46 kopecks and more than 90 percent of the output delivered to the state was first-grade. The expenditures on reconstruction were recovered in almost 1 year.

Specialists of the rayon administration of agriculture did a great deal to popularize the experience of the Kolkhoz imeni Zhdanov. More than 30 cow barns were reconstructed and division of labor per operation was introduced into them. On a number of farms every milkmaid services 100 cows. All milkmaids get 2 days off.

Unfortunately, things are not handled in this way in all rayons. For example, a seminar for the organization of winter stabling of livestock was held at the base of the Kolkhoz imeni Gor'kiy in Oktyabr'skiy Rayon. The operation of a mechanized fodder shop and of the KTU-10 mobile fodder distributor was shown. It is surprising, but after the seminar all this does not operate and milkmaids continue to manually distribute fodder to feeders. The expenditures of labor per quintal of milk total almost 10 man-hours on the farm. Such an unfit manner and method of work also make themselves felt on other farms in the rayon.

The operation of dairy and calf complexes requires special concern on the part of zooveterinary personnel. Many of them do not utilize the planned capacities for stock, operate inefficiently and have low indicators of productivity of cows and output of calves and high expenditures of labor and physical assets.

More attention should be paid to an improvement in the quality of milk. A total of 20 to 40 percent of the milk sold by many kolkhozes and sovkhoezes is second grade. This does damage both to kolkhozes and sovkhoezes and to the state. The fat content of milk is still low.

As the 26th CPSU Congress indicated, an increase in meat production is a top-priority task in the implementation of the food program. Therefore, every day this year we must work with special intensity in order to greatly increase the population of all types of livestock, to grow and gather the maximum possible amount of fodder and to raise the productivity of animals.

An increased intensification of the fattening of large-horned cattle on all farms producing beef remains an important reserve. This applies primarily to the specialized sovkhoezes of the Main Administration for the Procurement and Fattening of

Livestock of the Belorussian SSR Ministry of Agriculture, which, unfortunately, are still slowly drawn into interfarm cooperatives and have not become a technological center of the meat sector. Owing to the departmental lack of coordination of the Main Administration for the Procurement and Fattening of Livestock of the Belorussian SSR Ministry of Agriculture with administrations of agriculture, large ranches and complexes are built without taking into consideration local resources, which creates difficulties in the acquisition of stock and its provision with fodder. This occurs in Zhabinkovskiy, Braslavskiy, Berezinskiy and some other rayons. Therefore, the experience of Gomel'skiy Rayon should be popularized most rapidly.

It was noted at the conference that hog breeding is an important source making it possible to increase the production of meat and to greatly improve its structure in a short time. Meanwhile, it accounts for only 19.5 percent in the public sector of the republic's animal husbandry. Kolkhozes and sovkhoses will be able to accomplish the task set by the 29th Congress of the Communist Party of Belorussia for increasing the production of pork and raising it to 30 percent as a minimum in the structure of meat sale only on the basis of the sector's intensification, increase in stock, growth of productivity of animals and improvement in the utilization of the breeding herd. The Industriya Pedigree Stock Farm in Pukhovichskiy Rayon, the Rekonstruktor Pedigree Stock Farm in Klimovichskiy Rayon, the Kolkhoz imeni Lenin in Rogachevskiy Rayon, the Sovetskaya Belorussiya Kolkhoz in Kobrinskiy Rayon and other farms use the simplest structures successfully and make an efficient use of the possibilities of summer time for obtaining a large amount of cheap pork. The experience in feeding mixed silage, food waste and other fodder maximally increasing the coefficient of efficiency of grain on the Leninskiy Put' Kolkhoz in Nesvizhskiy Rayon deserves to be popularized. A total of 550 to 560 tons of pork are annually produced there on rations in which concentrates comprise only one-half of the total food value. Hog breeders on the Kolkhoz imeni Lenin in Kopyl'skiy Rayon and on the 1 Maya Kolkhoz in Slutskiy Rayon obtain good results with the same small expenditure of concentrates.

It was noted at the conference that, while striving for a perceptive increase in meat production, it is necessary to more efficiently utilize the possibilities of meat poultry, sheep and rabbit breeding, as well as to improve the supply of the population with food products at the expense of fish breeding.

The strengthening of the fodder base is one of the central problems in the system of measures for the development of animal husbandry. "During the 11th Five-Year Plan," T. Ya. Kiselev noted in his report at the 29th Congress of the Communist Party of Belorussia, "we must pay maximum attention to the establishment of a reliable and balanced fodder base for animal husbandry. We must lend a special nature to fodder production on kolkhozes and sovkhoses and place it on an individual basis."

An accelerated development of animal husbandry requires an increase in the role and responsibility of zoological veterinary specialists in the formation of the volumes, quality and structure of prepared fodder. All the components in the substantiation of the fodder base as applied to a specific farm should be based precisely on them.

The Belorussian SSR Ministry of Meat and Dairy Industry, the Belorussian SSR Ministry of Procurement, the Belorussian SSR State Committee for Agricultural Equipment, scientific research institutes, the Belorussian Agricultural Academy and staffs of higher educational institutions and tekhnikums must make an important contribution to the solution of the tasks set.

In the adopted appeal the participants in the conference announced their readiness to apply all their energy, experience and knowledge to the implementation of the decisions of the 26th CPSU Congress and fulfillment of the plans and socialist obligations of 1981 and the 11th Five-Year Plan as a whole.

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LIVESTOCK

CAPITAL INVESTMENT LAG NORMATIVES FOR LARGE SWINE-BREEDING COMPLEXES

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 1, Jan 81 pp 29-33

[Article by V. Titov: "Lag Normatives and Their Use"]

[Text] Comrade L. I. Brezhnev noted in the CPSU Central Committee Accountability Report to the 25th Party Congress that: "Full consideration must be given to the time factor in all work on improving management. In the area of planning, this means accurate recording, along with money and resources, of the time required to implement various plans and choosing variants which will yield the fastest return."

A significant place is given in economic theory to questions of recording time as an integral part of the problem of the effectiveness of social production. One aspect of the time factor is capital investment lag.

The standard methods for determining the economic effectiveness of capital investment recommend that lag be taken into account in the calculations. The procedure for determining and using it in the calculations is established in branch instructions. However, up until now, the branch instructions on determining capital investment lag norms have been prepared extremely inadequately. The necessity therefore arises of briefly describing the concept and definition of lag and its application.

The economic nature of lag is a consequence of the general patterns of reproduction of fixed and circulating capital, the technological cycle of obtaining a return on them, and the changeover from building production facilities to operating them and achieving a certain designed, planned or actual level of economic indicators.

Capital investment lag is taken to mean the gap in time between making a capital investment and obtaining the impact it is intended to achieve. Here, we need to examine three periods -- planning, construction and utilization of production capacities. Capital investment lag therefore consists of lags in planning, construction and utilization.

In turn, these lags are divided into three categories -- normative, planned and actual. Lags can have different units of measurement or different dimensions, that is, they are measured by the number of years, quarters, months, 10-day periods or weeks. A small lag dimension (in terms of number of weeks or 10-day periods) is ordinarily used to describe project lags being calculated within a one-year period. The determination of units of measure for project lags should be approached individually. We need to ensure strict observance of the dimensional unity of lags common to a project or complex.

The features of each branch must unquestionably be taken into account when determining lag. However, that consideration must be based on a unified method.

Planning lag is the period of time needed to convert the capital investments advanced for planning-investigation work into fixed assets and production capacities.

Expenditures on this work are part of the summary estimate for construction of the project (enterprise). Planning lag is determined using the formula:

$$\lambda_{np} = \frac{P_1 T + P_2 (T-1) + \dots + P_n [T-(n-1)]}{100},$$

where T is the total duration of planning-investigation work and construction; $P_1, P_2, \dots, P_n$ are the proportion of capital investments in planning-investigation work, in percent of the full estimated cost of construction during the corresponding year or period of a year of planning-investigation work; n is the last period of planning-investigation work.

The duration of planning-investigation work and the distribution of capital investment for these purposes by year (quarter, month, week, 10-day period) influence the size of planning lag.

At present, planning lag is often not taken into account, since the planning duration norms are not worked out for all projects (enterprises). At the same time, consideration of planning lag would permit a more accurate determination of total lag. For those projects (enterprises) whose planning-investigation work duration is less than six months, planning lag need not be determined. In that instance, capital investment in planning-investigation work should be taken into account when determining construction lag in the first year of construction.

Construction lag is the period of time needed to convert the capital investments advanced into fixed assets and production capacities.

The construction lag time depends on the duration of project (enterprise) installation and the distribution of capital investments by year of construction. Construction lag could be determined using the formula:

$$\lambda_{crp} = \frac{a_1 (n - 0.5n_1) + a_2 [n - (n_1 + 0.5n_2)] + \dots + a_n \cdot 0.5n_n}{100},$$

where n is the total duration of project (enterprise) construction; $a_1, a_2, \dots, a_n$ are the proportion of capital investments in percent of estimated project (enterprise) construction cost for the corresponding year or period of a year of construction minus the cost of planning-investigation work; 0.5 is a factor which takes into account the even distribution of capital investments throughout a year or portion of a year.

Let's show how construction lag is determined using the example of swine breeding complexes to raise and fatten 108,000 head and let's look at how that lag depends on the duration and distribution of capital investments by year of construction (Table 1, following page).

As is evident from the table, construction lag depends heavily on the distribution of capital investments by year of construction. Thus, "Il'inogorskiy" and "Gubkinskiy" complexes were built in two years, but the capital investments were utilized dissimilarly by year of construction. Construction lag at the "Gubkinskiy" complex was less,

Table 1. Dependence of Construction Lag Time on the Duration and Distribution of Capital Investments, By Year of Construction

swine-breeding complex	construction duration, in years	capital investment distribution by year of construction, percent				construction lag, in years
		1st	2nd	3rd	4th	
"Vostochnyy"	3.0	15	39	46	--	1.19
"Kuznetsovskiy"	2.5	66	28	6	--	1.62
"Il'inogorskiy"	2.0	65	35	--	--	1.15
"Gubkinskiy"	2.0	56	44	--	--	1.06
"Pravda"	4.0	1	20	25	54	1.18

since more capital investment was utilized in the second year of equipping it. Thus, the construction lag time will be less if the bulk of the capital investment is utilized in the latter years of construction. This is graphically evident in the case of "Pravda" swine-breeding complex. However, we cannot talk about construction effectiveness regarding this complex, since it has not received output for an entire year due to the fact that installation in the indicated period lasted longer than stipulated by the norms.

Let's examine the influence of construction duration on construction lag time using "Kuznetsovskiy" and "Il'inogorskiy" complexes as examples. Capital investment distribution was nearly identical in the first year of construction here. Subsequently, construction lag time was directly dependent on construction duration. Of the five complexes examined, three -- "Kuznetsovskiy," "Il'inogorskiy" and "Gubkinskiy" -- utilized 56-66 percent of the capital investments in the estimated cost of construction in the first year of construction. Given normative capital investment distribution by year of construction, utilization would be 25 percent in the first year. Experience in installing the enumerated complexes must be taken into account when working out construction duration norms for analogous enterprises.

Utilization lag is that period of time needed to achieve the level of return (release of finished product, obtaining a profit) anticipated by the plan from the fixed assets and production capacities which have been put into operation. Utilization lag is determined using the formula:

$$\lambda_{\text{loc}} = \frac{t - m_1(t - 0.5t_1) + m_2[t - (t_1 - 0.5t_2)] \dots 0.5m_n t_n}{100},$$

where t is the time it takes to master fixed assets and production capacities to release finished products; $m_1, m_2 \dots m_n$ are the proportion of utilization of the capacities, in percent of that anticipated by utilization duration norms; 0.5 is a factor which considers utilization even throughout the year.

Actual utilization lag must be determined through profit, using the following formula:

$$\lambda_{\text{loc}} = t - \frac{\sum_1^n \pi_{\phi}}{\pi_n},$$

where $\sum_1^n \pi_{\phi}$ is total actual profit during the utilization period and π_n is planned yearly profit.

Let's examine the influence of duration of utilizing production capacities for releasing finished output on lag time using the above-mentioned swine-breeding complexes as examples. The initial data and the lag time results obtained are given in Table 2.

Table 2. Dependence of Utilization Lag on Rate of Increment in Capacity Utilization, By Year

swine-breeding complex	utilization duration, in years	rates of increment in capacity utilization by year, in percent				utilization lag, in years
		1st	2nd	3rd	4th	
"Vostochnyy"	3.0	3	61	36	--	1.33
"Kuznetsovskiy"	3.0	71	25	4	--	0.33
"Il'inogorskiy"	2.0	64	36	--	--	0.36
"Gubinskiy"	3.0	40	43	17	--	0.77

As is evident from the table, the "Vostochnyy" complex has the greatest lag, the last two years accounting for the increment in capacity utilization. Here, utilization lag approximated utilization duration for the complex and is maximal. Fixed assets and production capacities are not used to release finished products during this period.

The least lag is at the "Kuznetsovskiy" complex, which utilized the bulk of its capacities in the first year.

Total capital investment lag equals the sum of the planning, construction and utilization lags. Normative, planned and actual lags are determined using the formulas given above, using the corresponding data.

Lag norms are calculated for individual projects (individual), for production directions (consolidated) and for branches (overall lag norms).

Consolidated lag norms are determined as a weighted mean of the individual lag norms of a production direction and overall norms are determined as a weighted mean of the consolidated lag norms of a given branch. In both cases, the weighting is done through capital investment volume or through capacity.

In calculating a lag value for a production branch or subbranch, the total capital investment during the planning period is broken down into the following three groups:

- capital investments in construction of the enterprises, lines and facilities being installed in accord with independent plans and estimates;
- capital investments in equipment not requiring installation and not part of the estimates for individual projects being built;
- capital investments on organizational-technical measures and to intensify production processes (excluding equipment not requiring installation and not included in the estimates of projects being built, which is included in the second group).

For capital investments of the second group, it is recommended that the construction lag value be taken as equal to one month, but for investments of the third group it must be determined on the basis of measures standard for the branch. Construction lag duration for the branch (subbranch) as a whole is determined as a weighted mean with consideration of all the capital investment groups.

For the second and third capital investment groups, the utilization lag value in the branch (subbranch) is generally taken to be up to one month. The duration of this lag as a whole is determined as a weighted mean with consideration of all three capital investment groups.

Individual lag norms are used in analyzing capital investment and construction effectiveness, as well as in working out production and work organization plans and drawing up calendar construction schedules.

Consolidated and overall lag norms are used in substantiating the projects being included in the plan, in distributing capital investment by production line, subbranch and branch, and in analyzing capital investment effectiveness.

The planning, construction and utilization of production capacities are objective processes in an overall cycle of fixed assets reproduction. But the national economy does not receive profit from the capital investments allocated to create fixed assets during these periods.

The losses from the diversion of capital investments are expressed by the formula:

$$Z_k = E_k \cdot K \cdot \Delta_{k, \text{tot}}$$

where E_k is the normative effectiveness factor.

During the analysis, the necessity often arises of knowing the losses from the diversion of capital investments for the individual periods of planning, construction and utilization. In this instance, the planning, construction and utilization lags, respectively, are substituted in the formula in place of total lag.

Our calculations for a number of swine-breeding complexes (Table 3) indicate the size of national economic losses caused by the diversion of capital investments to create additional capacities and fixed assets.

Table 3. Impact (Losses) from Diversion of Capital Investments During Construction of Complexes for 108,000 Swine

swine-breeding complex	estimated cost, in million rubles	construction lag, in years	impact (+) or loss (-), in million rubles	
			duration of construction lag period	as compared with normative construction lag
"Vostochnyy"	27.21	1.19	-3.96	+0.89
"Kuznetsovskiy"	22.72	1.62	-4.42	-0.45
"Il'inogorskiy"	25.57	1.15	-3.53	+0.92
"Gubkiński"	23.88	1.06	-3.04	+1.12
"Pravda"	26.59	1.18	-3.76	+0.86
"Alekseyevskiy"	24.24	1.66	-4.83	-0.61
"Timashevskiy"	20.60	1.55	-3.83	-0.25
"Kudryashevskiy"	38.73	1.93	-8.97	-2.23
"Aginskiy"	26.09	1.84	-5.76	-1.22
"Kalityanskiy"	43.81	1.63	-8.57	-0.95

It is evident from the calculations that the national economy incurs losses from the diversion of capital investments during the construction period of 13-29 percent.

In a majority of cases, actual construction lag exceeds the normative, but for a more thorough analysis we need to determine the impact or loss from a decrease or increase in construction time. The initial data and results are given in Table 4.

Table 4. Impact (Loss) As a Function of Construction Duration

swine-breeding complex	estimated cost, million rubles	construction time, years	impact (loss) due to increase or decrease in construction time, in million rubles
"Vostochnyy"	27.21	3.0	--
"Kuznetsovskiy"	22.72	2.5	+1.36
"Il'inogorskiy"	25.57	2.0	+3.07
"Gubkinskiy"	23.88	2.0	+2.87
"Pravda"	26.59	4.0	-3.19
"Aleksyevskiy"	24.24	4.0	-2.91
"Timashevskiy"	20.60	4.0	-2.47
"Kudryashevskiy"	38.73	5.0	-9.29
"Aginskiy"	26.09	4.0	-3.13
"Kalityanskiy"	43.81	3.0	--

As is evident from the table, the construction of a majority of the complexes was not confined to the normative period. As a result, the national economy incurred losses.

In analyzing the use of capital investments, the calculation results in Tables 3 and 4 must be viewed jointly, not separately. This enables us to choose the best construction variant.

The introduction of normative lag indicators and their correct determination and use in economic calculations will help planning and economic agencies, scientific-research and planning institutes more accurately substantiate construction variants and, in so doing, ensure higher capital investment effectiveness.

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LIVESTOCK

COW BARN RENOVATION CAPITAL INVESTMENT NORMATIVE DETERMINATION

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 1, Jan 81 pp 38-40

[Article by V. Rabshtyna, A. Yevtukhova and N. Chichko: "Capital Investment Normatives for Renovating Stockraising Farms"]

[Text] The CPSU Central Committee and USSR Council of Ministers decree "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Improving Production Efficiency and Work Quality" points out the necessity of improving planning on the basis of scientifically substantiated, progressive normatives.

Our research testifies to the fact that farm renovation capital investment normatives must be calculated on the basis of progressive machinery technologies for producing stockraising output. The factors determining the need for capital investment in improving stockraising production are: the production technology adopted, the structure of the livestock herd, the system of finishing the output and preparing it for market, the quality and capacity of the machinery and equipment, buildings and structures. In other words, the specifics of all the conditions of expanded reproduction which change as a function of the level of productive forces development must be reflected in the capital investment demand normatives.

In working out capital investment normatives for renovating stockraising premises and complexes, consideration is given to the standard plans for stockraising premises and complexes, as well as to the production technologies adopted in them.

Premises built following individual plans are grouped by capacity, width, length, number and spacing of support columns and average number of livestock spaces in them. They are then put into a group of standard plans with analogous parameters.

The capital investment normative for the construction portion of stockraising premises and complexes is determined on the basis of renovation work volume. As applicable to the target task, the cost of each type of work is established and the total expenditures on the particular facility are calculated on that basis.

The demand for machinery and equipment is determined for the calculated number of livestock spaces in the facility being renovated, the demand for general farm machinery and equipment -- with consideration of the capacity and size of the complex and length of transport lines, the demand for building materials and construction work -- according to technical-economic calculations.

For normal functioning of the complex, we anticipate the availability of the necessary auxiliary premises and installations.

All mobile means of mechanization (feed loaders, tractors, tractor trucks, mobile feed dispensers, bulldozers, equipment for auxiliary buildings and installations) are included in the capital investment normative for the complex.

In order to determine the normative, we work out at least 15 variants of premises renovation and five variants of complex renovation for one stockraising production technology. Averaged indicators are adopted for the normative.

In connection with the fact that the exact same stockraising production technology can be based on various sets of machines and flow lines with dissimilar costs, the overall normative is supplemented by partial deviations in amounts of capital investment in the premises or complex.

The capital investment normative for renovating premises also includes specific outlays of a general farm nature related to it.

With consideration of the enumerated conditions, we determined capital investment norms for renovating cow barns built from various standard plans. The capital investment norms for renovating dairy complexes were calculated for the most widely used modifications of keeping cows tethered and untethered (Tables 1 and 2).

Table 1. Capital Investment Normatives for Renovating Dairy Farms (tethered)

standard building plans	milking method	total capital investment per 100 head, 1,000 rubles	including	
			on mech- anization	construc- tion
801-23	in stalls	20.7	9.8	10.9
801-23	in milking room	29.3	9.0	20.3
586 PK-62	in stalls	20.1	9.7	10.4
586 PK-62	in milking room	32.0	9.2	22.8
801-70	--same--	34.6	7.8	26.8
801-48	--same--	32.8	8.4	24.4
801-46	in stalls	24.1	9.7	14.4
801-46	in milking room	28.3	8.7	19.6
801-46 (long)	in stalls	22.3	8.0	14.3
801-46 (long)	in milking room	33.4	7.7	25.7
801-47	in stalls	24.2	8.2	16.0
801-47	in milking room	31.9	7.6	24.3

[Table 2 on following page]

In connection with the fact that existing dairy farms have dissimilar levels of availability of auxiliary facilities and are not always provided with amenities, we calculated such norms (per 100 cows) for capital investment in auxiliary facilities of complexes as well. When necessary to build them, the renovation capital investment normative is increased correspondingly. Thus, when installing an administrative building with a decontamination center it increases by 14.3 percent, silage storage -- by nine percent, haylage storage -- by 1.2 percent, vegetable root crop storage -- by 13.3 percent, a veterinary center -- by 6.5 percent, a sanitary slaughter center -- by 3.8 percent, a machinery and equipment technical service center --

Table 2. Capital Investment Normatives for Renovating Dairy Farms (untethered)

standard building plans	milking method	total capital investment per 100 head, 1,000 rubles	including	
			on mech- anization	on con- struction
801-23	in bays	44.3	10.1	34.2
801-23	in combination bays	41.1	10.4	30.7
586 PK-62	in bays	47.5	10.6	36.9
586 PK-62	in combination bays	37.6	11.1	26.5
801-48	--same--	45.1	11.7	33.4
801-46	in bays	37.9	14.0	43.9
801-46	in combination bays	42.4	10.8	31.6
801-46 (long)	in bays	42.5	11.1	31.4
801-46 (long)	in combination bays	42.3	9.4	32.9
801-47	in bays	30.4	12.6	37.8
801-47	in combination bays	40.6	8.6	32.9
801-46 (long)	in deep bedding	42.6	7.0	35.6
801-47	--same--	43.7	8.3	35.4

by 1.2 percent, manure storage -- by 6.5 percent, a milk unit for finishing and storing milk -- by 5.5 percent, a barn for storing farm equipment -- by 1.3 percent, an automatic scale -- by 1.1 percent, farm enclosures -- by 2.4 percent, a boiler room -- by 8.5 percent, a birthing room -- by 11.7 percent, purification installations -- by 6.11 percent, and a feed shop -- by 8.4 percent.

Thus, the capital investment normatives for renovation are determined to a decisive extent by the level of completeness of stockraising farms (availability of the necessary buildings, installations and services). The cost structure of new complexes and facilities subject to renovation looks like this: cow barns -- 51-80 percent, subsidiary premises -- two to 18 percent, feed zone installations -- one to 17 percent, manure storage -- two to six percent of the total cost. The remainder represents general farm equipment and auxiliary facilities (artesian wells, roads and others).

A majority of the farms subject to renovation lack the necessary facilities for animal husbandry and veterinary work, sanitary treatment of servicing personnel, feed storage, manure storage, and so on. But renovation enables us to shape a dairy farm cost structure which is practically analogous to that of industrial complexes. In this connection, in the course of working out renovation resolutions for existing farms we need to anticipate the construction of additional facilities, on which 46.2 percent of the additional capital investment will be spent.

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ROLE OF SUBSIDIARY AGRICULTURAL ENTERPRISES DISCUSSED

Moscow EKONOMICHESKAYA GAZETA in Russian No 4, Jan 81 p 4

[Article by Economist G. Yakovlev: "On the Role of Subsidiary Organizations"]

[Text] Subsidiary agricultural enterprises, public dining systems and other organizations have been called upon to play an important role in resolving tasks connected with satisfying more fully our nation's need for food products.

At the present time, there are over 16,000 such enterprises in the nation with a land area of 7.5 million hectares. Even so, we still have fewer such organizations than we would like to have. There are within our nation substantial land areas on which such organizations could be created without any damage to the arable lands of kolkhozes and sovkhozes. Many mining industry, nonferrous and ferrous metallurgy enterprises have yet to take advantage of so-called "worked out" land for recultivation so that agricultural crops can be grown on it.

With a shortcoming of fodder for animal husbandry, wood by-products have proven to be very useful. The Kiev Biochemical Plant, for example, produced from such waste products in 1980 3,500 tons of hydrolized sugar--valuable fodder for cattle. In 1981, 8,000 tons of hydrolized sugar will be produced at that enterprise. Wood by-products which are not used in industry are an important type of raw material for the production of fodder. It is well worth while for leaders of our Ministry of Timber and Wood Processing Industry and of the Main Administration of the Microbiological Industry to find solutions for the given problem.

Virtually all branches of our national economy patently fail to make sufficient use of secondary (processed) heat for the warming of hothouses. Not enough effort is being put into the development of such an important field of activity as intensive pisciculture. This could be done on a year-round basis and effective use could be made of processed heat for that purpose.

Further expansion of subsidiary agricultural enterprises is of important significance for all regions of the USSR, particularly the nation's Northern and Eastern regions. Practically all branches of our national economy (depending upon their real capabilities) can augment agricultural production significantly through use of such enterprises.

We think it expedient that the following words be added to the draft of Basic Trends:

"To establish for all-union ministries and governmental departments belonging to corresponding branches of industry compulsory volumes of food production at subsidiary agricultural enterprises belonging to subordinate enterprises and institutions, with special attention being devoted to the production of meat, milk, eggs and vegetables." Subsidiary agricultural enterprises belonging to all-union ministries and governmental departments should be provided with state services--agronomical, zootechnical, veterinary, material-technical supply and design organizations--on an equal basis with kolkhozes and sovkhozes.

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SUGGESTIONS FOR IMPROVEMENT OF SUBSIDIARY ENTERPRISES

Central Control Recommended

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 Jan 81 p 2

[Article by R. Akopov, CPSU member since 1925: "Subsidiary Enterprises Should Have Centralized Control"]

[Text] Comrade L. I. Brezhnev in his speech at the October (1980) Plenum of the CPSU Central Committee, having pointed out the need to create a foodstuff program, emphasized that the living standards of Soviet people depend on solving this problem. This is also the Party's own approach, wherein the main concern is for the people's welfare.

At the present time a number of industrial enterprises have created their own suburban subsidiary enterprises for producing meat, milk, eggs, and vegetables. The items produced by them constitute a tangible assistance in strengthening the country's production base.

I think that under present-day conditions, when the experience in organizing subsidiary enterprises is becoming disseminated more and more widely, /it would be feasible to set up within the sectorial ministries administrative boards or at least small operating groups which would monitor and direct the activities of suburban plant farm-type enterprises. Such a centralized control would, undoubtedly, bring positive results, and, therefore, mention of it should be accorded a place within the Basic Directions./ [in boldface]

Operational Shortcomings Pointed Out

Moscow SEL'SKAYA ZHIZN' in Russian 15 Mar 81 p 2

[Article by G. Santuryan, Director, Razdanskaya GRES (State Regional Electric Power Station), Armenian SSR: "Agrarian Workshop for Electric Power Engineers"]

[Text] It would seem that I, as an electric power engineer and the director of a large GRES, would have more than enough direct concerns of my own. But here it's already been three years now that I, as well as many other comrades at work, have been manifesting no less concern over the subsidiary farm-type enterprise which has been set up on the vacant territory of the GRES.

We consider the emergence of our agrarian workshop to be fully in accordance with principle. The enterprise has at its disposal a surplus of heat and steam. Thus, our hothouses came into being. Suitable conditions and large areas of greenery round about led us to the thought of raising rabbits. After weighing all the pros and cons, however, we feared that this prolific little animal might get tangled up in our numerous cable communications and wires. And the thought occurred to us that the most rational thing to do was to develop pig farming.

We only obtain about 30 percent of our feed from republic funds. The remainder is our own (barley, sugar beets, potatoes). A kilogram of such feed only costs a total of four kopecks. And we have already begun to acquire a completely free source of feed reserves by coming to agreement with the ten closest public dining-rooms to collect their garbage. Every day we send a tank truck to the Razdanskiy Dairy for whey, which the shoats gladly consume. Among the families living in the Razdan micro-rayon, where many of our group's workers live, this is now the second year already that they have not thrown out a single pail of garbage. At certain appointed times a special motor vehicle is sent to collect this garbage. Such supplementary sources have been turned into substantial benefits.

The average daily weight gain on the pig farm has reached 500--520 grams. In a separate group receiving feed with lysine the weight gain increases even more. Some 4.5 feed units are expended per kilogram of weight gain.

We have made the following computations: a weight gain of 500 grams costs us 32 kopecks. Service personnel, heat, and electric power amounts to another 20 kopecks on the average. And so the total is 52 kopecks. We sell the meat to the gortorg /city trading post/ at a price of one ruble per kilogram, liveweight, and this provides a profit of 48 kopecks.

We have three hothouses. Last year we picked an average of 12 kilograms of cucumbers from one square meter. The entire harvest was consigned to the workers' dining rooms. The yield could have been greater. The proximity of the cement plant had a negative effect: there was a coating of cement dust on the glass walls of the hotbed; this was difficult to wash off, and the plants experienced a certain shortage of sunlight.

We have as much as 35 hectares of the territory under green vegetables; 20 of these hectares we planted in barley last year, which we have partially exchanged for mixed fodder. We use one and one-half hectares for potatoes, while the remainder is planted with fodder-type sugar beets. We intent to utilize chlorella also in the fodder ration. At present all the unused lands of the rayon are under the control of the rayispolkom, and some of them are being allotted to the enterprises. We were promised another 15 hectares, which will make it possible to grow additional fodder crops.

We organized the pig farm in January 1978. By the end of that year we were already able to sell three tons of meat. In 1979 we had 23 brood sows; we obtained 240 shoats from them and sold eight tons of meat through the Tsakhkadzorakly gortorg to our own workers and office employees. In 1980 we obtained 42 tons of meat. In addition to the regular broodsows, we also have "spare mothers." Recently we imported producers of the Estonian Meat Breed. This year we are planning to produce 70 tons of pork, and in 1982--100 tons.

All these areas were built by the hands of our own electric-power engineers. Both the first pig sty and the present large farm were constructed on the base of the old auxiliary and warehouse areas. We used structural components and equipment which had been headed for the metal scrap heap. This substantially reduced the cost of construction. We are now completing construction on the second pig sty with its feed-preparatory shop, where everything will be mechanized and automated. We ourselves installed the ventilation system, and to warm up the young shoats, we put in ultra-violet lamps.

If everything is figured out in a business-like manner, we can discover considerable reserves. At present our plans include the building of a cowshed for 50 head. Our reasoning was as follows: we now bring in 300--350 liters of milk daily as special feeding for our workers' hot shops. Our own cows will give us up to 500 liters of good-quality milk every day. On Saturday and Sunday the surplus can be made into cottage cheese, sour cream for the dining rooms and snack-bars. The construction of a dairy farm will cost 50--60,000 rubles, for which we can always obtain a state loan.

As regards feeds, a great deal can be accomplished here as well. Sunflowers or corn will yield green pulp for silage. We harvest about 50 tons of hay on the enterprise's territory. An equal amount will be derived from the environs of our boarding-houses.

In pondering over those passages in the Basic Directions where the necessary attention is devoted to the development of farm-type subsidiary enterprises at other types of enterprises, we see that we have still not utilized all our possibilities. A simple example follows. Alongside of us is the Armgidroenergostroy ORS [Workers' Supply Department]. It operates at a loss, servicing a small number of personnel of the custodial construction board. But, of course, we, the Armgidroenergostroy, and the Armglavenergo all have the same ministry; it is just that the sub-divisions within a department are different. If we took this ORS under our supervision, we could sell pork here also through our dining-rooms, and the meals would be even less expensive.

All the sub-divisions of Armglavenergo have considerable vacant areas which could be utilized to plant fodder crops. We have been given the following directive: each enterprise should organize its own subsidiary farm. But to what extent is this profitable? Is, let's say, the small group at the Gyumushskaya GES able to provide itself with a subsidiary farm? In their vacant areas, however, corn would be very suitable, whereas in the zone of the Leninakanskaya GES fodder-type sugar beets would grow well. If we were to utilize these two fodder crops in a business-like partnership, we could produce a yield of 250--300 tons of meat per year.

In due course the republic-level organs adopted an excellent decree concerning the development of subsidiary farms by industrial enterprises. It describes in detail what must be done and who should do it. But, of course, a resolution by itself, even a very good one, is still no guarantee of success. What we need is not disconnected efforts but concerted actions; we need supervisory controls and assistance. In short we need everything which is encompassed within the concept of painstaking and specific organizational work.

The sky is far from cloudless over the subsidiary farms of the industrial enterprises. There are still many unresolved questions. Foremost among them is the following: where to buy "for acquisition" livestock suitable for the farm? We have still not answered this question. And the problems of fodder production have still not been thought through to the end. When we have determined on measures to further develop the subsidiary farms, we will be able to make even better use of local resources to supply the population.

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RESULTS OF FIRST YEAR OF OPERATION OF AGROCHEMICAL SERVICE ANALYZED

Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 2, Feb 81 pp 3-10

[Article by V.P. Nikonov, deputy minister of Agriculture for the USSR and chairman of the Soyuzsel'khozkhimiya Association: "Results of the First Year of Operation and the Tasks for Further Improving the Country's Unified Specialized Agrochemical Service"]

[Text] The country's unified and specialized agrochemical service has completed its first year of production and scientific operations. Created in conformity with the decisions handed down during the July (1978) Plenum of the CC CPSU, within the system of agricultural organs, it has been tasked with bearing complete responsibility for the scientifically sound and efficient use of mineral and organic fertilizers, chemical ameliorants, plant protection agents, growth regulators and other chemical means, at all agricultural enterprises throughout the country. The past year was a difficult one for us. A great amount of time and effort was expended for carrying out organizational work. At the present time, 3,007 rayon and inter-rayon and 154 oblast and kray Sel'khozkhimiya associations have been created and are in operation throughout the country and production-scientific associations have been organized in all of the union republics. Their structure includes 206 agrochemical laboratories and planning-research stations, 152 plant protection stations with a far-flung network of support points and 12 scientific-research and planning-design institutes.

The system of specialized associations is staffed mainly by agricultural specialists possessing higher educations. More than 42,000 individuals are working at the institutes, agrochemistry laboratories, stations for the use of chemical processes and plant protection stations and the Soyuzsel'khozkhimiya system numbers approximately 400,000 individuals overall.

For carrying out their production activity, the associations have at their disposal 100,000 tractors, 100,000 motor vehicles, more than 450,000 units of specialized equipment and storehouse capabilities for 9.7 million tons of one-time storage.

The overall volume of work carried out by our subunits during their first year of operation amounted to 6.1 billion rubles, including 2.1 billion rubles for purely productive agrochemical operations. The associations are using their own resources for carrying out all work associated with the procurement of local lime and gypsum-containing materials, the liming and gypsuming of soils -- 96 percent, the

extraction of peat for fertilizer purposes -- 60 percent, hauling of organic fertilizers -- 42 percent and applications of mineral and organic fertilizers and the use of plant protection agents -- 25-28 percent of the work. In the case of supply operations, we are completely responsible: fertilizers, pesticides, preservatives, feed additives and others -- 640 suppliers, 47,000 consumers -- all of this passes through our commodity circulation network.

The Sel'khozkhimiya associations of Belorussia, Lithuania and Moldavia, from the very first day of their operations, have been carrying out great and purposeful work in raising the fertility of soils. Despite the complicated conditions experienced during 1980, the collectives of these organizations succeeded in proving themselves to be energetic and viable organizations possessing great prospects for development. The rayon and inter-rayon associations in the Kirghiz SSR commenced their operations in an organized manner: in 1980, the volumes for the principal agrochemical operations increased by a factor of 1.5-1.8 over the figures for 1979. The mechanized operations were carried out in a high quality manner, thus enabling the association, during its first year of operation, to earn the respect of farm leaders and specialists.

Successful work was performed in 1980 by the associations in Krasnodarskiy Kray, the Bashkirskaya and Tatarskaya ASSR's, in Pskovskaya, Voronezhskaya, Tambovskaya, Saratovskaya and Ul'yanovskaya Oblasts of the RSFSR, in Voroshilovgradskaya, Vinnitskaya and Khar'kovskaya Oblasts of the Ukrainian SSR and in Ashkhabadskaya and Maryyskaya Oblasts of the Turkmen SSR. In 1980, the Sel'khozkhimiya association in Volynskaya Oblast organized 30 additional detachments for the procurement of peat for fertilizer purposes, it opened up 11 new lime quarries and it strengthened the logistical base of rayon associations. However, the organizational period was prolonged in a number of republics, krays and oblasts. Agrochemical services were organized in a very slow manner in the Armenian SSR, where during 10 months of 1980 only 260,000 rubles worth of agrochemical work was carried out. The leaders of the Uzbek Sel'khozkhimiya failed to display adequate initiative. In this association the work amounted to nothing more than protecting the plants and making the chemical products available. Beyond any doubt, the protection of plants is important to Uzbekistan, but other types of agrochemical work must not be overlooked, since they also are of great importance to the republic, especially work associated with the restoration of "gravel" lands, the procurement and hauling of organic fertilizers and the reclamation of saline lands and land newly placed in operation.

The Ukrainian and Azerbaijan associations failed to cope with their planned volumes of work.

In view of the modern rates of development for the productive forces in agriculture throughout the country, the importance of chemical processes is increasing with each passing year. During the years of the Tenth Five-Year Plan, the use of chemical processes constituted 50-60 percent of all of the factors which contributed to the formation of agricultural crop yields. High indicators were achieved by many farms, rayons and a number of oblasts and republics, where chemical resources are employed on a complex basis.

An analysis of the effectiveness of use of fertilizers during the period following the March (1965) Plenum of the CC CPSU, at which the country adopted a program for

The intensification of agricultural production, reveals that fertilizers produce stable increases in yields throughout the country as a whole, especially for grain crops and raw cotton. Thus, during the 1966-1970 period the average annual increase in grain production, compared to 1965, was 21.1 million tons, raw cotton -- 3.4 million tons; for the 1971-1975 period, the figures were 27.5 and 4.6 million tons respectively; the 1976-1979 period -- 31.7 and 5.1 million tons. The greatest increases in grain (7-9 kilograms per kilogram of active mineral fertilizer agent) were obtained in regions of the north Caucasus, the Volga region, Siberia and Kazakhstan and in a large portion of the Ukraine.

The figures which describe the increase in grain and cotton yields throughout the country are increasing in synchrony with growth in the production and use of mineral and organic fertilizers, chemical soil ameliorants and plant protective agents. In 1980, agriculture was supplied with 19.2 million tons (active agent) of mineral fertilizers, compared to only 6.3 million tons in 1965. The use of organic fertilizers increased from 363 to 892 million tons and the volume of liming work increased twofold in terms of area and by a factor of four in terms of the quantity of lime materials used. Improvements were realized in both the assortment and quantities of pesticides delivered, particularly herbicides, and this made it possible during the past few years to introduce new industrial technologies for the cultivation of a number of agricultural crops on a more extensive scale.

The agrochemical science took a great forward step. For the country as a whole, the second cycle of agrochemical servicing of soils was completed and the scientific principles for plant nourishment, rational methods for applying fertilizers by zones of the country and scientifically sound complex systems for protecting plants against pests and diseases were developed. All of this taken together is making it possible for the country as a whole to obtain 2.3 rubles worth of crop husbandry products for every ruble expended for mineral fertilizers.

In a speech delivered before the October (1980) Plenum of the CC CPSU, the General Secretary of the CC CPSU Comrade L.I. Brezhnev placed a high value on the work performed by the agricultural workers who, during the complicated years of the Tenth Five-Year Plan, produced an average annual yield of grain in excess of 200 million tons. However, the country is not satisfied with this limit today. During the Plenum of the Central Committee, the requirement was expressed for raising the cropping power of all crops considerably, making our farming more stable in nature and, towards this end, intensifying the complex use of chemical processes in agriculture, which is on a par with land reclamation for solving the mentioned problems. In evaluating our work from the standpoint of these party requirements, it bears mentioning that the situation which exists today, involving the use of fertilizers, chemical ameliorants and pesticides, leaves a great deal to be desired with regard to the formation of a thrifty and economic attitude towards these resources.

For example, in the northwest economic region of the RSFSR the cropping power of the grain crops, during 4 years of the Tenth Five-Year Plan, decreased by 0.3 quintals per hectare, compared to the Ninth Five-Year Plan, and amounted to only 12.4 quintals per hectare, while at the same time the use of fertilizers in behalf of these crops increased from 131 to 213 kilograms of nutrients per hectare of planting, almost a twofold increase.

The effectiveness of fertilizers applied in behalf of sugar beets, vegetable crops and potatoes still remains low. For the country as a whole, the use of mineral fertilizers in behalf of potatoes, during 4 years of the Tenth Five-Year Plan and compared to the previous five-year period, increased by 52 kilograms per hectare and reached 273 kilograms per hectare in a computation for active agent and the average annual yield of tubers during this same period increased by only 4 quintals and amounted to only 103 quintals per hectare. A reduction in the cropping power of potatoes, despite a substantial increase in the norm for applying fertilizers, is taking place in Estonia and Latvia, nor has an increase taken place in the RSFSR, the Lithuanian SSR or certain other union republics.

In the case of the mentioned crops, solutions must first of all be found for those problems concerned with agricultural practices, plant breeding, seed production and effective protection against pests and diseases. Only when this is done will a considerable return be realized from the use of fertilizers. Let us discuss the fertilizers themselves. Tens and hundreds of examples of incorrect use of mineral fertilizers can be cited for each oblast and republic. But the essence of this matter is not concerned with examples but rather with the causes which bring them about; the same negative tendency is observed that is associated with our associations and earlier -- with Goskomsel'khoztekhnika. The system for supplying mineral fertilizers is still arranged in a manner such that many farms are deprived of the possibility of applying them during the optimum periods and in a complete complex in accordance with cartogram data. Unfortunately, a situation often develops wherein one farm has a surplus of nitrogen but lacks phosphorus or potassium, while for other farms the situation is just the opposite. Farms which are located in the vicinity of their supply bases often receive 1.5-2 times more fertilizer than their funds call for, while more remote farms end up with one or two types of mineral fertilizer in satisfaction of only one half of their fund requirements.

Here we also encounter situations wherein workers attached to the agrochemistry laboratories and stations for the use of chemical processes exercise very weak author's supervision over the carrying out of recommendations as developed. In this complicated work, many expenses are caused by a weak logistical base for the use of chemical processes and ineffective economic stimuli which at times simply engender an improper type of activity on the part of our subunits. The simple fact that we are still unloading fertilizers at 655 points along general use routes points towards very serious derelictions and to an unacceptable and wilful attitude towards the preservation of material values that have already been created. The elimination of this bottleneck in the work of Soyuzsel'khozkhimiya will make it possible to obtain 5 million additional tons of grain.

In particular, an unfavorable situation has developed at many oblast and rayon associations of Sel'khozkhimiya in Russia, fertilizers are being unloaded at 540 locations, including in Ryazanskaya Oblast -- at 11, Volgogradskaya Oblast -- 14, Penzenskaya Oblast -- 10, Permskaya -- 18 and Sverdlovskaya Oblast -- at 24 points; in the Ukraine, this is occurring at 65 and in Azerbaijan -- at 18 locations. Even with an extremely powerful scientific potential for the agrochemical service, we would never be able to achieve the required effectiveness from the fertilizers if this situation were to continue.

Each association must devote thought to and implement serious measures in the near future aimed at eliminating these unworthy of our times phenomena. Here we have in

ming not only the construction of new storehouses, although we must have these also, but other measures associated with achieving more complete use of all existing capacities and their modernization for accepting new mineral fertilizer carriers (at the present time, they can be accepted by only 233 bases). One often encounters the following paradoxical situation: the desire on the part of Sel'khozkhimiya associations to ensure the best preservation for their fertilizers, by storing them in their storehouses during the accumulation period, leads to great losses. The present one-sided economic relationships with kolkhozes and sovkhozes are in need of radical revision.

In 1981, agriculture will be supplied with 87.5 million tons of fertilizer (in conventional units). Compared to 1980, the actual increase in deliveries is small and thus priority importance is being attached to the correct distribution of the mineral fertilizers by crops and to mastering the methods for ensuring their proper use. By means of redistribution, a greater quantity of fertilizer must be made available for the grain crops. Compared to 1978, when 29.8 million tons of mineral fertilizer (in conventional units) were applied in behalf of the grain crops, in 1980 -- 31 million tons and in 1981 -- no less than 38 million tons must be applied. Special attention must be given to the use of complex fertilizers and granulated superphosphate as a start-up and row fertilizer. Compared to the years of the Tenth Five-Year Plan, when we applied fertilizer together with the seed on an area of 58 million hectares, the plans for 1981 call for such work to be carried out on an area of 88 million hectares.

Local methods for applying mineral fertilizers must be introduced into operations on an extensive scale in all zones. These methods are still being used only on limited areas, despite the fact that they are producing high results.

During the Eleventh Five-Year Plan, a greater quantity of specialized equipment for local applications of fertilizers will begin to appear. This equipment is not yet available and thus it is necessary to adapt the grain sowing machine and re-equip the potato-planting machines, deep rippers and other items of equipment. The labor expenditures for this are repaid twofold by a greater increase in yield being obtained from the same quantity of fertilizer.

In those republics in which more than 200 kilograms of active fertilizer agent are presently being applied per hectare (Uzbekistan and Belorussia -- 260 kilograms, Estonia -- 244, Turkmenia -- 232, Latvia -- 230, Lithuania -- 226 and Tadzhikistan -- 224 kilograms), a conversion must be made over to the use of mineral fertilizers based upon accurate norms and the balance method and programmed yields must be introduced into operations on irrigated lands. All of the above must be initiated by the agrochemical service.

Our subunits must also accept complete responsibility for ensuring that a complete complex of fertilizers and herbicides is available for the industrial technologies employed in the cultivation of agricultural crops. In 1981, the areas to be used for growing corn based upon the new technology must be increased to 2.9 million hectares. Everything required for protecting the crops against weeds will be made available at the sites prior to 1 April 1981, but strict controls must be established to ensure that the fertilizers are allocated and applied in the prescribed norms and on a timely basis: no less than 330 kilograms of active agent per hectare. The experience accumulated during 1980 has shown that when the

technology is observed completely, a corn yield of 70-75 quintals per hectare (and 120-130 quintals per hectare under irrigation conditions) must become the norm and criterion for evaluating the work of all workers, including specialists attached to the agrochemical service. Greater attention must be given to examining those problems concerned with the use of new technologies for cultivating other crops, since we have no other effective means available for making proper use of our fertilizers. The scales of work here are high: almost all of the rice, more than one half of the cotton crop, 47-60 percent of the sugar beets and soybeans and approximately 20 percent of the sunflowers and the principle is obviously the same -- if complex protection of the plants against weeds, pests and diseases is ensured, then plant nutrition must be at a maximum level.

One serious factor restraining growth in cropping power and the effectiveness of mineral fertilizers -- is the distribution of the country's agricultural lands on 65.9 million hectares of acid soil, 80 million hectares of alkaline soil and 25 million hectares of saline soil. In the absence of preliminary chemical reclamation of these lands or raising the reaction of the soil medium to the optimum level, the effect generated by other chemical agents has been and will continue to be low. Although the volumes of liming and gypsuming work have increased considerably during the past three five-year plans, nevertheless the quality of the work remains low in many oblasts and republics. As a result, great amounts of state resources are being expended and the anticipated positive improvements in the reaction of the soil medium have not been achieved. To the contrary, in some oblasts and republics the amount of acid land is increasing. For example, the area of such land in the Mordovskaya ASSR increased from 704,000 to 908,000 hectares and in Lipetskaya Oblast -- from 1.15 to 1.4 million hectares. In the nonchernozem and Far Eastern zones of the RSFSR, approximately 10 million hectares of acid soil have never been limed. For the country as a whole, supportive liming operations have been organized in a very poor manner. The purpose of such work is to eliminate the physiological acidity of the mineral fertilizers applied. We are inclined to explain the shortcomings in liming operations as being caused by the poor quality of the materials being received and disruptions in their deliveries. At the same time, we are devoting very little time to the work of procuring local lime materials. The industrial methods for preparing these materials are being introduced into operations very slowly.

More attention must be given to phosphorite applications -- a method which makes it possible not only to raise the phosphorite content in soil substantially, but also to lower the acidity of the soil. At the present time, the volumes of phosphorite applications are inadequate and they must be increased considerably through the use of phosphorite meal (industrially produced) and through the development of the reserves of phosphorite deposits considered to be unsuitable for large-scale industrial processing. Our associations possess such experience.

A very strong reserve for increasing the production of grain and feed continues to be that of agricultural-reclamative processing and gypsuming of solonetz soils. Over a period of 15 years, only 2 million hectares of such land have been developed. Fine results have been obtained from such processing and gypsuming in all zones throughout the country. For example, in Krymskaya and Khersonskaya Oblasts, where more than 200,000 hectares of solonetz soil have been developed, the farms are obtaining 100,000 additional tons of feed units annually from this area. Similar

high results have been achieved in Volgogradskaya and Rostovskaya Oblasts and in Moldavia and Kirgizia. However, even during 1980 the plans for applying gypsum were not fulfilled. More than 20 million tons of phosphogypsum are lying in the dumping grounds of chemical enterprises and only approximately 1 million tons are being used annually. Indeed, in addition to being an ameliorant, this is also an excellent sulphur fertilizer for perennial leguminous grasses. Our initiative is clearly lacking here. The CC CPSU and the USSR Council of Ministers recently adopted a decree on the development of solonetz lands in the Kazakh SSR. The plans call for an extensive program to be carried out in the near future. It will be carried out as part of an overall complex of operations by mechanized detachments and PMK's [mobile mechanized columns] of the Sel'khozkhimiya associations. Importance is attached to ensuring that the development of such land is planned and provided with material support in other zones of the country.

One principal condition for solving the food problem is that of systematic and purposeful activity on the part of the kolkhozes, sovkhoses and Sel'khozkhimiya associations in preserving and increasing the fertility of the soil. The experience of farming operations on our best farms and in our best rayons, where the norm has become a grain yield of 40-45 quintals per hectare, potatoes 250-300 quintals per hectare and sugar beets 400-500 quintals per hectare, indicates that such productivity is ensured only when an entire system of agrotechnical measures is carried out. However, the principal guarantee for such productivity is a high level of soil fertility, created and maintained by the intensive and complex use of organic and mineral fertilizers, soil ameliorants and by the timely use of pesticides, plant growth regulators and other chemical and biological means. For it is the complex use of chemical processes and their practical implementation that provides the foundation for the productive activities of our associations.

Permit me to add a few words concerning organic fertilizers. The work of accumulating and applying them has been organized in a fine manner in a number of oblasts in the Ukraine, in Belorussia on the whole and in the Latvian, Lithuanian and Estonian union republics, where they are being applied at the rate of 7 to 13.6 tons per hectare of arable land. However, for the country as a whole, organic fertilizers are being applied annually at the rate of just slightly more than 3 tons per hectare, that is, 2.5-3 times less than the scientifically sound norm, required for maintaining the humus content in the soil at the desired level. With the intensive use of arable land, the degradation process for even chernozem soils has accelerated. Thus, since 1958 the humus content in the arable land in the Central Chernozem Zone of the RSFSR decreased on the average from 5.6 to 5.1 percent, in Saratovskaya Oblast -- from 7 to 6.5 percent. The humus content in the majority of soils in the nonchernozem zone of the RSFSR is less than 2 percent.

Science has established in detail exactly what is required in order to maintain the fertility of a particular type of soil and for a particular crop rotation plan and yet very little action has been taken in this regard. As yet, no substantial improvements have been realized in this area as a result of the creation of the agrochemical service. Here there are two main problems. The first: up until now, only 7 percent of the country's kolkhozes and sovkhoses have had standard farmyard manure storehouses, where shops could be organized for the preparation of quality composts. At the same time, of the large capital investments being earmarked for agriculture, only limited funds are being made available for solving this problem

in a majority of the republics. Second -- the time, place and methods of application. More than one half of the organic fertilizers is moved out onto the fields during the winter and early-spring periods. For example, let us look at the potato fields during the spring applications of farmyard manure or composts -- they are hard and trampled down, up to 30 percent of the land has been transformed into "brick" and the farmyard manure (or compost) is distributed in an irregular manner. The vicious practice of using bulldozers to distribute organic fertilizer on fields is being employed extensively. In such situations, even high norms (60-70 tons per hectare) exert only a negligible effect on the yields.

In 1980, the agrochemical associations succeeded in applying 200 million tons of organic fertilizer, or 28 percent of the overall amount, using their own resources. In accordance with their technical equipping, 500-550 million tons could have been applied, particularly during the best period -- following the harvest work or prior to sowing the intermediate crops, on fallow or autumn plowed land. However, in many oblasts of the Ukraine and the Russian Federation the equipment of mechanized detachments was diverted to carrying out field operations on a mass basis and in a number of oblasts (Permskaya, Sverdlovskaya, Volgogradskaya) -- from the commencement of spring work and prior to snow. Although farming work is always tense, nevertheless there are those who must work for tomorrow by solving today's tasks.

The work concerned with carrying out a complex of operations aimed at preserving and increasing the fertility of the soil in the republics of Central Asia and the Trans-Caucasus is proceeding very poorly. This is the result of Goskomsel'khoztekhnika having left the principal forces of its mechanized detachments behind. An abnormal situation clearly developed. For example, let us take the Georgian SSR. The Sel'khozkhimiya association in this republic has institutes within its structure for agrochemistry, plant protection and planning-research stations, where 1,400 individuals are performing active work -- this is surely a powerful scientific potential. But the continuous movement from science to the land and fields, not only with desires but also with technical resources, never took place as expected within the single service, since the agrochemical service was provided with only 250 tractors for the entire republic. This problem must be solved and it must be solved not just to the satisfaction of a particular department, but rather in a manner so as to raise the productivity of the arable land. Yet the former procedures are continued -- some develop and recommend, others partially carry out the work and nobody bears responsibility for the entire complex associated with the fertility of the soil.

The plans call for the use of organic fertilizers to be increased to 1-1.2 billion tons prior to the end of the Eleventh Five-Year Plan. Work must be intensified with regard to preparing the peat sites and procuring peat for fertilizer purposes: annually, the plans are being fulfilled by only 60-70 percent. Extensive use must be made of municipal domestic waste products and the time has come to devote serious attention to procuring spropels for fertilizer purposes. Indeed the country's spropel supplies are in excess of 253 billion cubic meters. During the Eleventh Five-Year Plan, agriculture will be supplied with production equipment for use with powerful tractors. Under these conditions, the role played by specialized detachments of our associations will increase considerably. Of the entire complex of work to be carried out with organic fertilizers, they will be required to perform a minimum of 75-80 percent of the overall volume.

One more very important problem must be solved through the specialized agrochemical service -- the extensive use of liquid ammonia in agriculture as a concentrated nitrogen fertilizer. This work, which began some time ago in our country, in 1965, has already accumulated sufficient material for proving the high effectiveness of liquid ammonia as a fertilizer, especially in the production of feed and as a reagent for the processing of coarse feed and flax-straw. However, the scales of its use are still not very high. On 1 November 1980, 256,000 tons of liquid ammonia were applied to the soil on an area of 1.76 million hectares and 1.33 million tons of coarse feed were treated. These volumes were clearly inadequate, since 1 ton of ammonia furnishes 22 tons of additional corn yield, or 1 ton of animal oil produced on the basis of the additional feed obtained. Interest in this most valuable fertilizer has been displayed and strengthened in our country by work carried out in Gomel'skaya, Grodnenskaya, Vitebskaya, Kostromskaya, Cherkasskaya, Vinnitskaya, Donetskaya, Dnepropetrovskaya and L'vovskaya Oblasts, in the Bashkirskaya, Mariyskaya and Tatarskaya ASSR's and in Latvia, that is, in 13 administrative territories. A restraining factor for others is the absence of storehouse capacities, the country's requirements for which have been satisfied by only 15 percent, the delay in turning over the Tol'yatti - Odessa ammonia delivery line where only three distribution stations are in operation instead of 30 and the as yet insufficient number of specialized machines for applying ammonia to the soil. These are objective factors. But there are also subjective ones. We presently have 6,500 machines that can be used with ammonia. A portion of them have been distributed to the farms and are being employed in a non-productive manner or not at all. In Donetskaya, Vinnitskaya and Gomel'skaya Oblasts the output per ABA-0.5 unit, with a cultivator, is 60 tons per season and in Vladimirskaia and Poltavskaya Oblasts, where the units were sold to the kolkhozes and sovkhoses -- only 7 tons, in Ivanovskaya Oblast -- 10 tons and in Kuybyshevskaya Oblast -- 11 tons. This equipment must be concentrated in specialized detachments of the agrochemical service. Considerably more attention should be given to the construction of rail-served and remote storehouses.

The plant protection service became a part of the Soyuzsel'khozkhimiya system. It bears mentioning that it has a far-flung network of stations and support points throughout the country and it numbers more than 29,000 workers, including 16,000 specialists. They organize the plant protection operations, they provide orderly management and control over the measures to be carried out, they prepare forecasts on the appearance and development of pests and diseases, they direct the work of 650 biological laboratories and biofactories and they organize training for the personnel working in the plant protection detachments and teams. The work performed by this service is very important, since crop losses caused by pests and diseases cannot be compensated by any technological methods.

In 1980, the work of protecting crops and plantings was carried out on an area of 191 million hectares, including a campaign against pests and diseases on 80.4 million hectares, with the biological method being employed on an area of 15.3 million hectares; a campaign against weeds was carried out on 65 million hectares and defoliation and dessication -- on 5.5 million hectares. The carrying out of such a complex of work made it possible to protect products valued at 8 billion rubles.

It bears mentioning that fine work was performed by the Chernigov, Krynsk, Krasnodar, Kustanay and Kokchetav plant protection stations, the Ural Expedition of

the Kazakh SSR and by the entire Moldavian Republic service, all of which accomplished a great deal towards the effective introduction of new industrial technologies for the cultivation of corn, sunflowers, soybeans and other crops.

The work being carried out by the stations in connection with introducing biological methods for combating pests is deserving of maximum support. For example, of the overall volume of work carried out in Kashkadar'inskaya Oblast for protecting cotton, 46.5 percent was carried out using the biological method and in Namanganskaya Oblast -- 55.7 percent. This made it possible to reduce sharply the use of chemical agents and to manage with just one treatment with pesticides.

At the same time, the work being performed by the plant protection service is hampered by a number of very serious shortcomings.

As is well known, the agricultural requirements for pesticides are not being satisfied. In view of the present level of mineral nutrition (90 kilograms of active agent per hectare of arable land), there should be 30 kilograms of pesticides per ton of active mineral fertilizer agent and yet only 12.5 kilograms are being supplied. In 1980, herbicides were applied to 45 percent of the grain and cotton plantings, 37 percent of the sugar beets, 46 percent of the soybeans, 13 percent of the sunflowers, 2 percent of the pulse crops and 31 percent of the vegetable crops. As a result and according to computations by the All-Union Scientific Research Institute of Agricultural Economics, the withdrawal of nutrients by weeds when there is an average level of crop weediness, just on areas occupied by grain, sugar beet and cotton crops, exceeded 11 million tons of NPK when only 13.2 million tons were applied with all types of fertilizers. However, just as was earlier the case, substantial changes for the better did not take place in 1980 with regard to the use of those plant protection agents being made available to agriculture. The herbicide resources were sufficient for carrying out chemical weed control work on 80 million hectares of crops and yet only 65 million hectares were treated. The plant protection agents are dispersed among the kolkhos and sovkhoz storehouses and in previous years hundreds of tons of residues accumulated at many of these storehouses, constituting many thousands of tons for the country as a whole. Pesticides lose their activity and serve as a source for environmental pollution, since their storage conditions are by no means ideal. Permit me to cite just one example -- at the Kreyser Avrora in Shakhovskiy Rayon in Moscow Oblast, more than 10 tons of different types of bulk herbicides are stored, if one can use the term storage, in an irresponsible manner in a primitive storehouse. Unfortunately, an outrageous attitude towards pesticides is also rather widespread. Large quantities of seed dressers have accumulated on the farms. The plant protection service has not expressed an opinion in this regard; its workers have adopted a passive position, transferring the guilt to others.

A number of Sel'khozkhimiya associations are not devoting proper attention to protecting the chemical plant protection agents at their specialized bases. The pesticides are being stored with no breakdown as to groups or sections and with violations taking place in the rules for storage and fire prevention safety. Included among such violators are the Zernogradskiy and Yegorlykskiy Rayon Sel'khozkhimiya associations in Rostovskaya Oblast, the Zergerskoye and Annau inter-rayon Sel'khozkhimiya associations in the Turkmen SSR and the Kungur and Perm' inter-rayon associations in Permskaya Oblast.

The plant protection service is not exercising adequate control over the observance of the regulations for the use of pesticides and by no means is it ascertaining the quality of the preparations being made available to agriculture. It would seem that under conditions involving a single specialized system for the use of chemical processes, full utilization should be made of all opportunities for raising the effectiveness of the plant protection stations. Unfortunately, this is not taking place in a majority of the associations and individual subunits of our service are still operating on an uncoordinated basis in the various areas. In view of the fact that the kolkhozes and sovkhozes are only being supplied with 60 percent of the sprayers and dusters required, machines for chemical disinfection work -- 67 percent, the associations of Sel'khozkhiniya have had to undertake considerable volumes of work. In 1980, the associations carried out plant protection work using ground equipment on an area of 15 million hectares and using aviation means -- on 16 million hectares. Just as in the past, very little has been accomplished in connection with the creation of solution terminals, refueling sites or the mechanization of these operations, all of which, it can be stated directly, constitute dangerous work. Meanwhile the new and highly productive equipment for applying pesticides, which is being made available to agriculture, continues to be delivered not for the purpose of strengthening the specialized plant protection stations, but rather the farms themselves.

There is one other serious area of neglect: cartographs on the weediness of fields are still not being prepared at kolkhozes and sovkhozes throughout the country and the orders for herbicides are being composed without taking into account the species structure of the weeds. We are thus depriving ourselves of the possibility of using the herbicides in various combinations and we are generally and sharply reducing the effectiveness of their use. Recently, an association council handed down the decision to accept requisitions only if they are accompanied by cartograms on weediness and instructions were approved for computing the degree of weediness. Unfortunately however, this work was carried out on a very tardy basis. In all of the associations, strict order must be established for carrying out this very important work and the workers attached to the plant protection service must convert over from making recommendations and carrying out methodological functions to performing organizational work. Moreover, they must accept responsibility for the correct storage and effective utilization of all plant protection agents.

Agriculture is confronted by many other problems associated with the use of chemical agents. Under the natural conditions found in our country, in order to maintain the productivity of arable land at the proper level, more extensive use should be made of such chemical resources as growth regulators, nitrification inhibitors and hydrophobic film-forming materials for the covering of seed. Many millions of tons of grain were lost during 1980 owing to excessive lodging of the grain crops, while the Tur and Campozan preparations remained in the storehouses. At kolkhozes and sovkhozes in Belorussia, the Baltic region, the Forest District of the Ukraine and the nonchernozem zone of the Russian Federation, only 8-10 percent of the crops are being treated with retardants and the requests for deliveries of the preparations are decreasing with each passing year and this is a disturbing development for the chemical industry.

In 1980, in oblasts of the nonchernozem zone of the Russian Federation and in some oblasts of the Ukraine and Belorussia, corn was sown on an area of 420,000 hectares

using waterproof seed. Fine results were obtained in all areas. It is believed that this method must be disseminated to other zones throughout the country, since it makes it possible to sow the corn one month earlier and to obtain considerably more output.

Permit me to add some words concerning our partners: the aviators and machine builders. The volume of aviation chemical operations in 1980 exceeded 97 million hectares. The pilots of civil aviation performed fine work in protecting the crops, applying top dressings and carrying out defoliation and dessication work. Our subunits in Lithuania, Moldavia, Kazakhstan, Tadzhikistan and Turkmenia and also in many oblasts and krais of the RSFSR accumulated positive experience in the centralized services offered by aviation. This contact must be further expanded. A requirement exists for doing this and the necessary conditions are available. Our republic and oblast associations must work in close contact with the enterprises and organizations of the recently created Soyuzsel'khozkhimash associations. Similar to ourselves, they are experiencing difficulties in their formation and growth. Nevertheless, they have already commenced serious work in connection with producing their initial batches of more improved and more productive agrochemical machines. The association is participating actively in the creation of models of self-propelled machines based upon the use of powerful tractors.

Agrochemical services in behalf of agriculture have been under development for more than 1 year and a definite amount of experience has been accumulated. Economic agrochemical stations, interenterprise facilities which were created on a cooperative basis and large-scale agrochemical complexes of rayon associations are all in operation. One of our principal tasks is that of determining which organizational forms should be used for the conditions found in the various zones throughout the country. Moreover, the following must be common to all zones: development of the all-round use of chemical processes, ensuring growth in labor productivity for agrochemical operations, unconditional reduction of material and labor expenditures per unit of area treated and material interest on the part of the workers in the quality of their work and in the final results of their labor -- the crops.

Deserving of special attention in this regard is the operational experience of the agrochemical complexes (under the jurisdiction of the rayon Sel'khozkhimiya associations), which employ an industrial technology for applying all of their chemical means. They were created and operate on a state basis (in Moscow and Kostromskaya Oblasts, in the Mariyskaya ASSR and in Belorussia, Lithuania and the Ukraine) and on a state-cooperative basis (in Belgorodskaya and L'vovskaya Oblasts and in Moldavia). I will discuss in somewhat greater detail the work of the Pervomayskiy Rayon Sel'khozkhimiya Association in Khar'kovskaya Oblast. It has been in operation for 5 years and it services 13 kolkhozes and five sovkhoses representing an overall area of 86,000 hectares. The complex includes a storehouse for 10,000 tons of loose fertilizers, a storehouse for 2,400 tons of packaged fertilizers, a storehouse for 2,000 tons of lime and phosphorite meal and facilities for storing 1,600 tons of liquid fertilizers. Twelve mechanized teams were created for carrying out agrochemical work; they have at their disposal 72 tractors, 20 IRMG-4 mineral fertilizer spreaders, 10 KSO-9 spreaders, 15 PTS-9 spreaders, 65 motor vehicles (of which number, 20 have KSA-3 units) and 16 ammonia carriers. The overall number of workers is 203. The agrochemical complex is fully responsible for

the unloading and storage of the fertilizers up until the moment they are used, for loading and transporting them out onto the fields (to 100 percent) and for applying the fertilizers to the soil using its own resources (85 percent of the overall quantity of mineral fertilizers and 75 percent of the organic fertilizers). What are the positive factors here? The elimination of excessive transshipments of fertilizers has made it possible to reduce their losses by twofold (during the five-year plan on the whole, this amounted to approximately 9,000 tons of mineral fertilizer) and the opportunity afforded for sorting the fertilizers, when stored at one location, made it possible to apply NPK to each field in exactly the prescribed quantity for the crop planned, with 70 percent of the mineral fertilizer being applied prior to the principal tilling of the soil. Under the conditions provided by the agrochemical complex, the indicators for the use of the machine-tractor pool increased, the output per standard tractor was 2,636 hectares (compared to an average of 1,345 for the rayon) and the use of special equipment improved by a factor of 5-6. One feature of the work performed by the rayon association was that its activities were coordinated with the work of the kolkhozes and sovkhoses and strictly controlled by the agrochemists, who were assigned to the tables of organization for all of the farms. The plans for the use of fertilizers, developed by the Ukrainian Institute of Soil Science and Agrochemistry, are found both on the farms and in the association, and each mechanized team operates on the basis of mutually coordinated plan-orders. Whereas during the Ninth Five-Year Plan Pervomayskiy Rayon obtained on the average 24.1 quintals of grain per hectare and 196 quintals of sugar beets per hectare, during the Tenth Five-Year Plan, when more favorable weather conditions prevailed, the grain crop yields increased by 6.6 quintals per hectare and sugar beets -- by 111 quintals per hectare. Such growth in cropping power was achieved mainly as a result of raised fertilizer effectiveness, with no substantial increase taking place in the norms for applying them: they remained on the order of 112 kilograms of active agent per hectare. Thus one of the most backward rayons reached first place in the oblast in terms of cropping power. At the present time, a decision has been made to create a base for the storage of pesticides within the agrochemical complex and to build a terminal for the preparation of all working solutions for the plant protection agents and storehouses for the storage of feed preservatives, growth regulators and liquid herbicides delivered in tanks. Control sites will also be built for regulating and checking out all equipment prior to operation. An express-laboratory is being created in the association for determining the level of nitrogen nutrition in plants and exercising control over the quality of the agricultural output, including the quality of the feed procured. The construction of a technical servicing station for tractors and other equipment is nearing completion. Future plans call for the construction of two departments, to which mechanized detachments will be deployed. Thus, in this form, the rayon Sel'khozkhimiya Association will become a more effective advocate of the complex use of chemical processes in agriculture throughout the rayon. The work of the association is deserving of complete support and its operational experience should be disseminated to all zones throughout the country, since it is reducing considerably the path leading to the final goal and it requires comparatively few logistical resources.

Workers attached to the Soyuzsel'khozkhimiya Association, together with all of the leaders of republic associations, have studied thoroughly the methods employed for the use of chemical processes in the GDR, Czechoslovakia, Hungary and other countries. They are all following roughly the same path in providing agrochemical services and in the construction of agrochemical complexes. The only difference

being in the scales and in the degree of intensity in the use of chemical processes. A question arises: is this the only acceptable form for agrochemical services? No, it is not the only one. Three thousand economic and interenterprise agrochemical stations have been created and are in operation throughout the country. Many of them have accumulated considerable experience in raising the effectiveness of chemical resources. Thus, for example, a station for the use of chemical processes at the Rodina Kolkhoz in Leningradskiy Rayon in Krasnodarskiy Kray ensures the use of these resources on an area of 14,300 hectares. Sixty four machine operators work at the station and the work is organized in two shifts. During the Tenth Five-Year Plan, 4,500 tons of mineral and 100,000 tons of organic fertilizers were used annually and growth in the cropping power of the grain crops: 29.5 quintals per hectare during the Eighth Five-Year Plan, 35.2 quintals per hectare during the Ninth Five-Year Plan and 40 quintals per hectare during the Tenth Five-Year Plan. During the 1976-1980 period, the kolkhoz on three occasions obtained sugar beet yields in excess of 500 quintals from each of 1,000 hectares.

Fine work is also being performed by many stations for the use of chemical processes, created on a state-cooperative basis in Chernigovskaya, Cherkasskaya, Rostovskaya, Kaluzhskaya and other Oblasts. The circumstances require that we make a determination in the near future as to the organizational forms to be employed in each oblast, kray and republic for providing agrochemical services, particularly in view of the fact that this problem has been studied on more than one occasion.

Commencing with the first year of the Eleventh Five-Year Plan, we must carry out large-scale work associated with the creation of our principal production subunits. Moreover, it should be borne in mind that 30,200 of the 47,000 farms have growing areas ranging in size from 500 to 4,000 hectares, that is, it is scarcely possible to ensure the efficient use of highly productive equipment at 70 percent of the farms, notwithstanding the modern level in the use of chemical processes; for them it would be more acceptable to centralize the agrochemical services, with extensive cooperation in the use of farm resources, especially in the construction of aircraft runways and branches of the agrochemical complexes.

It can be stated quite frankly that the newly created Sel'khozkhimiya associations are encountering very difficult conditions with regard to the technical servicing and repair of machines and tractors. The constant flow of fertilizers (3,000 freight cars daily), large volumes of motor transport operations (230 million tons transported during 10 months of 1980) and the urgent nature of this work require a constant and high state of readiness for all technical equipment used in carrying out these operations. The machines and mechanisms are operated in an aggressive environment on a day to day basis and this cuts the inter-repair periods in half. Moreover, proper repair conditions are not available. At 3,007 rayon associations there are 79 workshops for current repair work (2.6 percent of the requirement), 650 technical servicing stations (21 percent) and 442 (motor vehicle garages (14.7 percent)). The organizations of Goskomsel'khoztekhnika are responsible for carrying out the repair and technical servicing work. In this regard, our associations have not been provided with tables of organization for the repair workers or with plans for their work. In 1980, despite the fact that many joint orders and instructions by the USSR Ministry of Agriculture and USSR Goskomsel'khoztekhnika were handed down, no improvement was noted in the situation. At the present time, the enterprises of Goskomsel'khoztekhnika have undertaken to provide technical servicing

for 37.6 percent of the tractors of the Sel'khozkhimiya associations and for 38.5 percent of the motor vehicles. However, the repair of specialized machines has still not been organized and large freight trucks are not being serviced. The situation is very bad in Vologodskaya, Kurskaya, Omskaya, Vitebskaya and Sumskaya Oblasts. It is simply incomprehensible why associations which, from an organizational standpoint, formed one of the most important trends in the party's agrarian policies, encountered such grave conditions commencing with their very first months of operations.

Beyond any doubt, the leaders of the agrochemical service at all levels must be more active and display intelligent initiative and persistence, particularly in view of the fact that within our system solutions have yet to be found for many problems of an economic or legal nature. We have not achieved proper responsibility for the punctual fulfillment of their obligations from many services, especially those which are involved in the unloading and transporting of fertilizers. The idle time of freight cars in oblasts of the Russian Federation, Azerbaijan and in some oblasts of the Ukraine exceeds by twofold the permissible level. The work of the motor transport enterprises has not been regulated and requires more efficient organization, both at the rayon level and at the level for the republic, kray and oblast associations. Only slowly are solutions being found for the problems concerned with creating internal repair-construction organizations and without them it is impossible to ensure normal development for all of our subunits. The problem of strengthening labor discipline in the collectives warrants very serious attention.

Serious concern is also being aroused over the fact that our principal production element -- rayon associations -- in many oblasts and krays, has still not acquired an organizational structure, as called for in the standard official schedule. The combining of all services at this level took place in a purely formal manner. At 40 percent of the overall number of rayon associations, the chief agricultural chemists receive wages at zonal agrochemical laboratories and naturally they are included on the tables of organization there; the plant protection specialists in a majority of rayons perform in the role of representatives of oblast or inter-rayon plant protection stations. In those areas where there are rayon stations, they often remain aloof from the production associations. All of this takes place because the sources for financing the services vary and the budgetary appropriations for the chemical and plant protection service are used for four items and nine paragraphs and the rayon associations are not entitled to combine them or have their own accounts. It is believed that these represent the expenses for just the first organizational year and that the USSR Ministry of Finances will aid us in changing the classification of the budgetary appropriations and bringing it to the norm corresponding to a single service and its tasks. For a number of republics, we must once again return to the problem of maximum appropriations, official personnel strength and work plan. At the point of direct production, we must have within the system an active and fighting unit, one which has been allotted rights and the opportunities for employing them and which has full responsibility for the work.

Under the conditions imposed by a single specialized agrochemical service, greater importance is attached to the role played by the scientific institutes in solving the basic tasks concerned with the use of chemical processes in agriculture. We are expecting the scientific institutes to provide us with solutions for the problems concerned with the use of chemical processes and also for the problems associated with the work of the associations.

Economically sound systems must be developed for the interrelationships between the agrochemical subunits on the one hand and the kolkhozes and sovkhozes on the other, including measures for raising mutual material responsibility for the timely and high quality fulfillment of work and contractual obligations, scientifically sound price and rate levels for work carried out and measures for improving the system of wages and motivating workers in all of the subunits, depending upon the yields obtained in the zone of services.

Improvements must be realized in planning and exercising control over the production processes. Our system is new and requires the development of a large number of normative documents. An automatic system for carrying out agrochemical soil studies and determining the quality of plant products, feed, fertilizers and ameliorants must be further improved and introduced into production operations.

The Central Institute of Agrochemical Services for Agriculture and the republic institutes falling within the jurisdiction of the association must reexamine their structure, since it is associated with the working out of those problems concerned with the work of the agrochemical service. We are concerned over the fact that in the union republics, with the exception of the RSFSR, Moldavia, Turkmenia, Georgia and Azerbaijan, a solution has not yet been found for the problem of transferring the appropriate scientific-research institutes over to the republic associations.

In solving our problems, we hope to receive effective assistance from the scientific-research institutes in the VASKhNIL [All-Union Academy of Agricultural Sciences imeni V.I. Lenin] and also from the institutes of other ministries and departments engaged in the use of chemical processes in agriculture. One very important trend in their work must be that of intensifying those fundamental studies aimed at achieving efficient use of chemical resources in various regions of the country.

For solving the more vital problems of agrochemical services and the efficient coordination of the work of production subunits and scientific institutes, 21 basic republics, krays and oblasts were appointed by the Soyuzsel'khozkhimiya Association. Specific work programs were composed in each one of them and these programs were examined and approved by the local party, soviet and agricultural organs. Large-scale scientific resources are being employed for solving the established problems. This work has been organized very well in Moscow Oblast. Here, in addition to the institutes and organizations of the Sel'khozkhimiya Association, the services of the All-Union Scientific Research Institute of Phytopathology, the All-Union Scientific Research Institute of Labor and Agricultural Administration, the Scientific Research Institute of the Vegetable Economy and other institutes have been enlisted. Recommendations are being introduced throughout the oblast in connection with the use of micro-fertilizers, diagnostic methods for raising the effectiveness of nitrogen fertilizers, for mixing mineral fertilizers, for introducing a new technology for applying liquid ammonia and many other developments. A vast program of work has been prepared in Kaluzhskaya, Leningrad and Voronezhskaya Oblasts, in the Tatarskaya ASSR, Belorussia and Moldavia.

In the successful operation of our associations, a very special role is played by the chemical stations and agrochemical laboratories. During the period of their existence, they have accumulated rich material on the agrochemical properties of

soils. They have accomplished a great deal with regard to supplying the farms with recommendations on the use of fertilizers and soil ameliorants. These organizations comprise large numbers (approximately 17,000 individuals) of skilled personnel, individuals who provide a connective element between science and production. They play a very great role with regard to the overall results achieved by the associations.

A new qualitative stage is commencing in the work of the agrochemical laboratories and chemical stations, one in which they must not only provide a farm with scientifically sound plans and planning-estimates documentation but, as well, participate in organizing the efficient use of the chemical resources and in the carrying out of not only control-recommendation but also organizational-technological functions. The work of the associations and agrochemical laboratories must be evaluated based upon the level of repayment, in the form of yield, obtained from the use of the chemical resources. Today we are no longer satisfied with a 7-8 year periodicity for inspecting soils; it must be reduced twofold. Nor are we satisfied with the fact that a large number of the laboratories are limiting their work to merely determining the acidity level and the phosphorus and potassium content. At the present time, it is impossible to employ chemical processes successfully in the absence of data on the content in the soil of microelements, magnesium, calcium, sulphur and humus. The required conditions are available in each laboratory for carrying out such analyses, the methods have been developed and the instruments are being produced. A requirement of the times is that of converting over to determining a complete complex of agrochemical indicators in the soils. This has already been done in the Baltic region and in Belorussia. These indicators are required not only for having a complete agrochemical description of the soils, but also for evaluating the quality and variety of the mineral fertilizers. If we are aware that the addition of microdosages of zinc to chernozem soils having a carbonate base in the north Caucasus furnishes 5-7 additional quintals of grain corn per hectare, then we are obligated to work in close contact with the new ministry for the production of mineral fertilizers in order to ensure the production of mineral fertilizers containing the required microelement additives. The fact that our present assortment of complex fertilizers contains only two types having microelements is the fault of our agrochemical laboratories. Although these laboratories possess the potential, they nevertheless have not as yet validated the requirements for microelements for the specific zones.

A large number of laboratories and chemical stations are capable of determining the nitrates in the soil and the nitrogen in plants (for controlling nutrition by vegetative periods). We have lagged seriously behind all other countries in these matters, despite the fact that we are using greater quantities of nitrogen. A similar and acute problem for agriculture continues to be that of organizing control over the quality of the agricultural products. At the present time, the farms are creating almost spontaneously their own laboratories for determining the quality of their feed and vegetable and other products. This work is being carried out in a more organized manner in Krasnodarskiy Kray, Omskaya Oblast and in Lithuania and Latvia. And this process must necessarily be controlled and headed by the agrochemical service. The Sel'khozkhimiya associations, TsINAO [Central Institute of Agrochemical Services] and the Agropribor Association must supply these laboratories with the methods, instruments and reagents.

Under the conditions imposed by this single system for agrochemical laboratories and chemical stations, control over the quality of the chemical products has not been manifested to the degree required. Recently, this work has deteriorated in a number of oblasts in the Ukraine and the Russian Federation. As a result, there has been a reduction in the exactingness imposed upon the industrial enterprises with regard to observing the standards and conditions for the deliveries of fertilizers and pesticides.

There is still another problem. The range of work being carried out by the agrochemical laboratories is expanding. They must develop into planning-research stations for the use of chemical processes in agriculture, while at the same time the single service for kolkhozes and sovkhoses must provide scientifically sound recommendations not only for the problems of plant nutrition but also for protecting the plants against pests, diseases and weeds. A joint station for the protection of plants and agrochemistry commenced operations recently in the Abkhazskaya ASSR. Its operational experience must be studied so that during the next few years a decision can be made as to just what is expected of this element of our single service.

In the final analysis, success in any endeavor is dependent upon the people involved and in our service everything is dependent upon the availability of skilled cadres of machine operators and specialists in the use of chemical processes in agriculture. An acute shortage of personnel is being experienced in all areas, especially in the oblasts in the nonchernozem zone. Use must be made of all of the opportunities available for training machine operators and drivers through the system of professional technical education. At the same time, a solution should be found for the problem of creating training-course combines and courses for improving the skills of machine operators, for providing agrochemical services while assigned to oblast associations of Sel'khozkhimiya.

A large requirement also exists for agricultural chemists and agronomists for the protection of plants. The agricultural VUZ's and technical schools are presently meeting only one half of our requirements. In view of the fact that the requests for young specialists are being forwarded through the gosplans for the union republics, the leaders of the republic associations must enlist the support of the gosplans for staffing the newly created service with specialists of the mentioned profile.

Attaching exceptional importance to the use of chemical processes for further raising the productivity of agricultural production, USSR Goskomtrud [State Committee for Labor and Wages of the USSR Council of Ministers] and the AUCCTU instituted 35 challenge red banners as incentives for the leading collectives of associations and organizations in the Soyuzsel'khozkhimiya system. The task of the associations consists of actively joining in the all-union socialist competition for worthily preparing for the 26th CPSU Congress and publicizing and introducing into operations the experience of leading workers.

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TILLING AND CROPPING TECHNOLOGY

LACK OF ATTENTION TO BUCKWHEAT, MILLET LAMENTED

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 3, Mar 81 pp 37-39

[Article by M. Novozhilov, state inspector of the USSR Ministry of Procurement: "More Attention to Buckwheat and Millet"; similar material appeared in JPRS 75981/1240, 2 July 1980, pp 119-124 and JPRS 76692/1256, 24 October 1980, pp 38-41]

[Text] The high food value of buckwheat and millet and their versatile use in the country's national economy place hulled crops in the rank of the most valuable agricultural crops. Their proportion in the total volume of grain purchases makes up about 3 percent. Therefore, it is very important to unconditionally fulfill the established purchase plans.

At the July (1978) Plenum of the CPSU Central Committee Comrade L. I. Brezhnev pointed out the following: "More attention should be given to the cultivation of buckwheat, millet, rye and corn for grain. A number of farms clearly underestimate these crops." "Basic Trends in the Economic and Social Development of the USSR for 1981-1985 and for the Period Until 1990" also set the task of increasing the production and purchases of millet, buckwheat, rye and corn. For agricultural and procurement bodies these directives are of special importance, because the level of buckwheat and millet production formed in the last few years does not ensure the fulfillment of the plan for the purchases of these crops and creates certain difficulties in the supply of hulled and rolled products for the population.

At the same time, practice shows that, where this matter is handled in the right way, advances are made.

When using advanced agricultural techniques in the cultivation of buckwheat and millet, many farms and rayons obtain good and stable harvests of these crops. Even under the unfavorable weather conditions of 1979 kolkhozes and sovkhoses in Primorskiy Kray and Amurskaya, Kiyevskaya, Kirovogradskaya, Odesskaya and Khmel'nitskaya oblasts fulfilled the plans for the purchases of buckwheat grain. Altayskiy Kray and Novosibirskaya, Vinnitskaya, Chernigovskaya, Cherkasskaya and Pavlodarskaya oblasts fulfilled the plan for the purchases of millet.

Kolkhozes and sovkhoses in Altayskiy Kray made big advances in the increase in the production and procurement of buckwheat. As compared with 1965, the area sown with this crop tripled, totaling about 100,000 hectares. In 1976-1980 the

average annual gross production of buckwheat grain reached more than 75,000 tons. Farms in Sovetskiy, Krasnogorskiy and Troitskiy rayons in the kray annually obtain high harvests of this hulled crop and fulfill the plans for its sale to the state. In addition to grain, advanced kolkhozes and sovkhoses store up a considerable quantity of honey.

On farms in Nezhinskiy Rayon, Chernigovskaya Oblast, buckwheat is a highly remunerative and profitable crop. Its big harvests enabled the rayon to fulfill and overfulfill the five-year plan for the sale of buckwheat to the state.

During the 10th Five-Year Plan the production and procurement of the grain of this crop increased considerably. Definite credit for this is due to the rayon state inspectorate for the purchases and quality of agricultural products.

The state procurement inspectorate is engaged in extensive organizational work directed toward the fulfillment of state plans and forward contracts, uncovering of commodity resources and supervision of the rules of acceptance and determination of the quality of buckwheat grain.

Regular trips of state inspectors to kolkhozes, sovkhoses and grain receiving enterprises make it possible to control the observance of advanced agricultural cultivation techniques, harvesting, preparation of the material and technical base, correspondence of forward contracts to planned production volumes and course of fulfillment of the plans for the production and procurement of grain, to study the state of affairs in the localities and to take practical measures to eliminate shortcomings.

As a result of the constant supervision and implementation of prompt and effective measures the Nezhin State Procurement Inspectorate attained quite good indicators in the fulfillment of the purchases of buckwheat grain. For example, in 4 years of the 10th Five-Year Plan the rayon's kolkhozes and sovkhoses fulfilled the plans for the sale of this crop 130 percent.

In 1976-1979 farms in Krasnokutskiy Rayon, Saratovskaya Oblast, fulfilled successfully the plan for the sale of millet to the state. They sold 77,700 tons of millet to the state, while the plan called for 22,5000 tons, or 3.4 times more than specified in their contractual obligations. During individual years the yield was 24.6 quintals per hectare and, on the average, in 4 years of the 10th Five-Year Plan, 15.6 quintals, while the planned yield was 9.7 quintals.

Kolkhozes and sovkhoses in Fedorovskiy Rayon in this oblast, with a plan of 19,000 tons of millet in 4 years (1976-1979), sold 72,200 tons to the state, or 3.8 times more.

Along with these good examples, we can cite other examples, when many farms, rayons and oblasts do not fulfill the plans for the production and procurement of hulled crops year after year. As a result, the production of buckwheat grain has decreased considerably in the last few years. In 1976-1979 the areas sown with buckwheat, as compared with the 1966-1970 level, on the average, were reduced by 10 percent annually and the yield was lowered by 0.9 quintals per hectare and marketability, from 46 to 43 percent. On the average, the areas sown with millet were reduced by 9 percent.

Agricultural bodies and managers of many sovkhozes and kolkhozes do not pay attention to these very important crops. They are often placed on inferior land, agricultural cultivation techniques are violated and the application of the necessary amount of mineral fertilizers is not ensured. Considerable areas are sown with buckwheat and millet late and in connection with this these crops do not ripen. Some farms use seeds of nonregionalized varieties for sowing.

The situation with the production and procurement of buckwheat and millet is especially unsatisfactory on many kolkhozes and sovkhozes in the RSFSR, the Ukrainian SSR, the Kazakh SSR and the Belorussian SSR.

In the RSFSR farms in Ryazanskaya, Orlovskaya, Kurskaya, Voronezhskaya, Belgorodskaya, Tambovskaya, Penzenskaya and Ul'yanovskaya oblast have not fulfilled the established plans for the sale of buckwheat and millet grain for a long time.

Kolkhozes and sovkhozes in Kustanayskaya, Pavlodarskaya and Ural'skaya oblasts in the Kazakh SSR failed to deliver a large quantity of buckwheat and millet to the state.

In the Ukrainian SSR the plan for the purchases of buckwheat has not been fulfilled in the last 10 years. In 5 years (1976-1980) the republic's farms failed to deliver 297,000 tons of buckwheat to the state.

For example, in Ramenskiy Rayon, Sumskaya Oblast, the Pravda Kolkhoz concluded a forward contract for the sale of 150 tons of millet to the state in 1980, which comprises 88 percent of the planned gross output (170 tons), but, in fact, it produced only 53 tons. In the last 5 years the marketability of millet comprised only 58 percent (on the average, in a year) there.

In Starobel'skiy Rayon, Voroshilovgradskaya Oblast, the Kolkhoz imeni Michurin, the Rossiya Kolkhoz and the Ukraina Kolkhoz in their production plans envisaged obtaining 1,320 tons of buckwheat in 1980 and selling 1,118 tons, or 85 percent, to the state, but they obtained only 989 tons. During the 10th Five-Year Plan marketability did not exceed 50 percent.

The same situation exists in a number of rayons in Penzenskaya Oblast. For example, the Kolkhoz imeni Kirov in Penzenskiy Rayon every year concludes a forward contract for the sale of buckwheat to the state, but does not fulfill it. In the last 4 years the kolkhoz has not sold buckwheat to the state, although it has had an annual plan of 30 tons. In this rayon 16 kolkhozes and sovkhozes in their production plans for 1980 envisaged obtaining 900 tons of buckwheat and selling 700 tons, or 78 percent of the gross output, to the state, but in 1980 they obtained only 838 tons and sold only 313 tons. During the five-year plan marketability did not exceed 25 percent.

The Krasnyy Oktyabr' Kolkhoz in Terektinskiy Rayon, Ural'skaya Oblast, was supposed to sell 1,500 tons of millet to the state. It planned to obtain a gross output of millet totaling 1,540 tons with a marketability of 97 percent, despite the fact that during the 5-year period marketability did not exceed 65 percent. The gross output obtained there is lower than the output in contractual obligations by a factor of 1.7.

The Kolkhoz imeni Michurin, the Rodina Kolkhoz and the Trudovik Sovkhoz in this rayon also overstate the yield and marketability during the planning of millet production. They plan the marketability at 94 to 97 percent and the yield, at 16 to 20 quintals per hectare, as compared to the attained 8 to 12 quintals per hectare. The production of this crop is also one-half the production in the purchase plan.

Cases of incorrect planning also took place in 1980, which points to the obviously insufficient attention to this important problem on the part of state inspectorates for the purchases and quality of agricultural products in some rayons and oblasts.

Practice has demonstrated that the efficiency of buckwheat and millet cultivation directly depends on the concentration of production and procurement. However, in many oblasts and rayons plans are scattered over all kolkhozes and sovkhoses. For example, in 1980 plans for the purchases of buckwheat ranging from 1,000 to 7,000 tons and of millet ranging from 1,000 to 10,000 tons were assigned to 15 oblasts, krays and autonomous republics in the RSFSR. In the Ukrainian SSR in 1980 the plan for the purchases of 210,000 tons of buckwheat ranging from 1,000 to 26,000 tons was assigned to 18 oblasts. Under such conditions the necessary stability of buckwheat and millet production is not ensured, sown areas are reduced and gross output and marketability are lowered.

In the last few years a number of farms have been delivering a considerable amount of buckwheat and millet with an increased content of weedy admixture, smut and de-hulled and crushed grains. Such grain is used only for mixed feed and for technical purposes and farms lose much money on refaction.

The extensive dehulling of buckwheat and millet grain is due to the fact that many kolkhozes and sovkhoses are not yet provided with a sufficient number of attachments for grain combines for thrashing the grain of these crops on softer regimes.

In order to provide the hulled product industry with uniform batches of buckwheat and millet grain, it is very important to correctly form these batches on farms and at grain receiving enterprises.

The laboratories of grain receiving enterprises, when fitted with the necessary equipment and provided with means of transport, could give considerable help in the preliminary evaluation of the quality of grain and formation of uniform batches of hulled crops.

According to the data of the state grain inspectorate and the All-Union Scientific Research Institute of Grain and Grain Products, the weediness of the 1979 millet harvest comprised 9.4 percent, on the average, that is, it was at the level of 1978. The weediest millet was received in the Central Chernozem Region, that is, 12.8 percent. At the same time, the weediness of some batches in Voronezhskaya, Belgorodskaya, Tambovskaya and Lipetskaya oblasts reached 20 to 40 percent. Weedy millet was also received in the Volga Region--11.4 percent--and in Ural'skiy Rayon--10.4 percent--and in a number of cases it comprised 49 percent. On the average, the grain admixture in millet comprised 9.6 percent. There was a high content of grain admixture in millet in the forest steppe zone of the Ukrainian SSR, that is, 11.4 percent, in the Central Chernozem Region, 12.4 percent and in the North Caucasus Region, 10.4 percent.

The USSR Ministry of Procurement and the USSR Ministry of Agriculture approved the following buckwheat varieties most valuable in their quality for 1981: Aelita, Bogatyr', Bol'shevik (tetraploid), Iskra (tetraploid), Kalininskaya, Krasnostrel'skaya, Mayskaya, Prikamskaya, Skorospelaya 81, Solyanskaya, Chishminskaya, Shatilovskaya 4 and Shatilovskaya 5. On delivery the grain of these varieties should have a normal color and smell and no more than 4 percent of dehulled grains in the grain admixture and no more than 0.5 percent, in the weedy admixture.

The following are millet varieties: Volzhskoye 3, Veselopodolyanskoye 38, Irtyskoye, Kazanskoye 506, Kamyshinskoye 67, Mironovskoye 51, Mironovskoye 94, Orenburgskoye 42, Orlovskoye 92, Podolyanskoye 24/273, Raduga, Saratovskoye 3, Saratovskoye 853, Skorospeloye 66, Start, Khar'kovskoye 25 and Khar'kovskoye 65. On delivery the millet grain of these varieties should have no more than 6 percent of dehulled and germinated grains in the grain admixture, including no more than 1 percent of germinated grains, and no more than 0.5 percent of damaged grains and no more than 1.5 percent of weeds that are hard to separate (yellow foxtail, cow soapwort, Johnson grass, rice and large-fruit millet and day flower) in the weedy admixture. An admixture of toxic weeds is not permitted.

State resources receive very little buckwheat and millet grain of the most valuable varieties, mainly owing to an increased content of dehulled grains and weeds that are hard to separate. In 1979 state resources received only 9 percent of valuable varieties of millet and 22 percent, of buckwheat. The lowered quality of the raw materials received at hulling plants leads to the fact that the established norm of output of high varieties of hulled buckwheat--61 percent--is not fulfilled.

During the 11th Five-Year Plan it is necessary to see to it in advance that the volumes of production of buckwheat and millet grain guarantee an unconditional fulfillment of forward contracts for the sale of these crops to the state.

In order to increase the production and procurement of buckwheat and millet grain, incentive measures for workers engaged in the production of these crops were developed in 1965.

It was recommended to kolkhozes and permission was given by the management of sovkhoses, for harvests of buckwheat and millet higher than the average yield per hectare in the last 4 or 5 years obtained on a farm, to distribute from 25 to 50 percent of the buckwheat and millet grain gathered in excess of the average annual gross output during those years to kolkhoz members and sovkhos workers (engaged in operations connected with the cultivation of these crops) as an additional payment. The following increased purchase prices were set everywhere as of 1981: 330 rubles per ton of grain of standard buckwheat, 110 rubles, of ordinary millet and 160 rubles, of the most valuable millet varieties, according to the list of varieties annually approved by the USSR Ministry of Agriculture and the USSR Ministry of Procurement.

In order to significantly increase the production and procurement of buckwheat and millet grain, the USSR Ministry of Agriculture and the USSR Ministry of Procurement suggested that RSFSR, Ukrainian SSR, Belorussian SSR and Kazakh SSR ministries of agriculture and ministries of procurement take additional measures to

eliminate the existing shortcomings and in the next 2 or 3 years raise the proportion of grain of the most valuable buckwheat and millet varieties in the total volume of grain purchased by the state. For this it is necessary to widely utilize the experience of the farms that obtain high harvests of hulled crops and to see to it that all the kolkhozes and sovkhoses that engage in the cultivation of buckwheat mandatorily have beehives.

State inspectorates for the purchases and quality of agricultural products should promptly and carefully check the course of fulfillment of forward contracts for the sale of buckwheat and millet grain to the state and on the basis of the results of the check take efficient measures to eliminate the uncovered shortcomings.

Buckwheat and millet grain should be placed in dry, well ventilated grain storage facilities and the moisture and temperature should be observed constantly. In order to avoid spoilage when the quality of damp or moist freshly harvested buckwheat and millet grain is lowered, it should be placed in warehouses equipped with active ventilation. Even the slightest self-warming of grain lowers the quality of hulled and rolled products considerably.

As the investigations of the All-Union Scientific Research Institute of Grain and Grain Products have shown, good ventilation results are obtained if no less than 30 cubic meters of air per ton in 1 hour are supplied to the pile when the moisture of grain is 16 percent, 40 cubic meters when the moisture is 18 percent, 60 cubic meters when the moisture is 20 percent and 80 cubic meters when the moisture is 22 percent.

The height of the pile of buckwheat and millet should be no more than 2 meters and, when the moisture is more than 20 percent, no more than 1.6 meters. Ventilation should not be stopped as long as the grain in the upper layer of the pile does not dry to the temperature close to the air temperature.

Procurement bodies should manifest greater concern for an increase in the procurement of buckwheat and millet and for their preservation in order to give more high-quality hulled buckwheat and millet to the country's population.

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